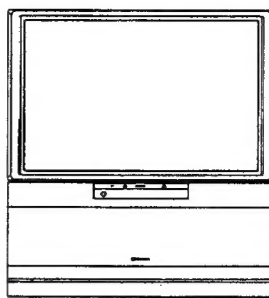


# Service Manual

**PIONEER®**  
The Art of Entertainment



The illustration shows model SD-P5185-K.

ORDER NO.  
**ARP2880**

PROJECTION MONITOR RECEIVER

# SD-P5185-K

## SD-P5183-K

## SD-P4683-K

## PRO-98

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

| Type  | Model                 |                       |                       |                       | Power Requirement | Remarks |
|-------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------|---------|
|       | SD-P5185-K            | SD-P5183-K            | SD-P4683-K            | PRO-98                |                   |         |
| KUX1C | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | AC 120V           |         |

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
**This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.**

#### WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.



#### NOTES

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

#### REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

## 1. SAFETY PRECAUTIONS

**NOTICE:** Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis or picture tube.

The following precautions should be observed:

1. Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while picture tubes are handled.  
Keep picture tube away from the body while handling.
2. When service is required, even though the PROJECTION MONITOR RECEIVER an isolation transformer should be inserted between power line and the set in safety before any service is performed.
3. The cut metallic sides of internal chassis, frames, etc. of the product may be burred in some cases. Therefore be careful not to injure your hands, etc. when handling the chassis, frame, etc.
4. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
5. When service is required, observe the original lead dress.  
Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
6. Always use the manufacturer's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's.

Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.

7. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacturer has become defective, or inadvertently defeated during servicing.

Therefore, the following checks should be performed for the continued protection of the customer and service technician.

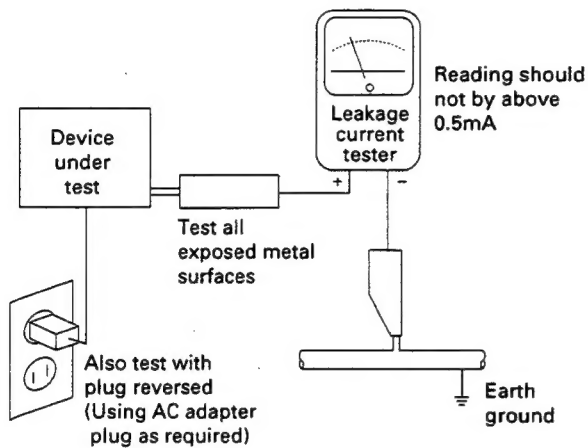
#### Leakage Current Cold Check

With the AC plug removed from the 120V AC 60Hz source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part ( input/ output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 0.3M $\Omega$  and a maximum resistor reading of 5M $\Omega$ . Any resistor value below or above this range indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

### Leakage Current Hot Check

Plug the AC line cord directly into a 120V AC 60Hz outlet ( do not use an isolation transformer for this check ). Turn the AC power switch on.

Using a "Leakage Current Tester ( Simpson Model 229 equivalent )", measure for current from all exposed metal parts of the cabinet ( input / output terminals, screwheads, metal overlays, control shaft, etc. ), particularly any exposed metal part having a return path to the chassis, to a known earth ground ( water pipe, conduit, etc.). Any current measured must not exceed 0.5mA.



### AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.**

### High Voltage

This set is provided with a X-ray protection for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this X-ray protection may correctly be operated.

### Serviceman Warning

In the status of the black picture ( video muting is being applied ) when no signal is input, high voltage of this set during operation is less than 30.5kV. In case any component having some relation to the high voltage is replaced, confirm that the high voltage is lower than 30.5kV in the status of the black picture when no signal is input.

To measure H.V. use a high impedance H.V. meter. Connect ( - ) to earth and ( + ) to the FBT anode cable connector.

(Refer to page 128)

### X-radiation

**TUBE:** The primary source of X-radiation in this set is the picture tube.

For continued X-radiation protection, the replacement tube must be the same type as the original, PIONEER approved type.

The picture tube ( CRT assy R, G, B ) use in this set holds complete guarantee against X-ray radiation when the X-ray is sealed ( See page 4 ). Accordingly, when the current is flowing to the picture tube ( CRT assy R, G, B ), be sure to perform it by putting the tube into X-ray sealed applied state. Avoid absolutely to flow the current to the picture tube ( CRT assy R, G, B ) itself. Moreover, when the voltage of the high voltage circuit becomes abnormally a little higher, the picture tube radiates X-rays. Accordingly, when servicing the high voltage circuit be sure to replace as an assy with the POWER SUPPLY assy in the manner in which has been adjusted to perform normal operation.

## 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\triangle$  on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, X-radiation, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

### 3. CHARGED SECTION, HIGH VOLTAGE GENERATING POINT AND X-RAY PROTECTION



#### ■ Charged section

The circuit in which the commercial AC power is used as it is without passing through the power supply transformer. If the charged section is touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. In this case, be sure to connect the set via an insulated transformer and supply the current.

#### ■ Charged section

##### (Power supply primary side)

1. The primary side of the POWER SUPPLY assy
2. AC power cord
3. MAIN POWER switch

-  part is the charged section.  
 part is the high voltage generating points other than the charged section.

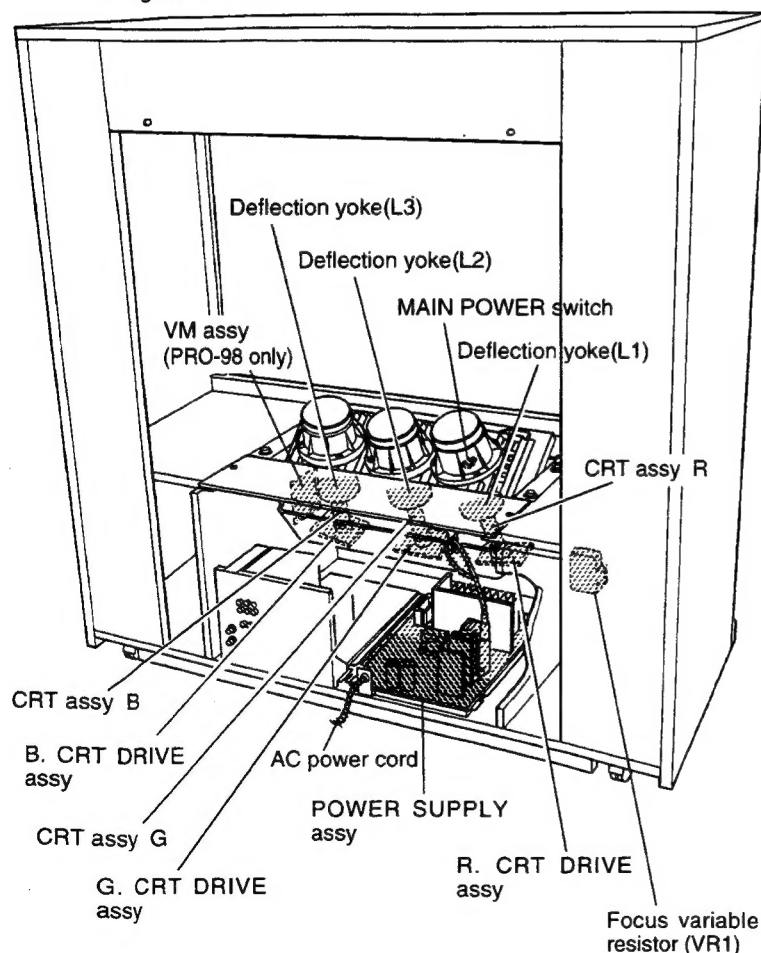


Fig. 1 Charged section and high voltage generating point

#### ■ High voltage generating point

The place where voltage of over 100V is generated.

1. Charged section
2. POWER SUPPLY assy (including FBT) (30.0kV, 135V)
3. R. CRT DRIVE assy (10.5kV)
4. G. CRT DRIVE assy (10.5kV)
5. B. CRT DRIVE assy (10.5kV)
6. VM assy(PRO-98 only) (135V)
7. CRT assy R (30.0kV)
8. CRT assy G (30.0kV)
9. CRT assy B (30.0kV)
10. Focus variable resistor(VR1) (10.5kV)
11. Deflection yokes (L1, L2 and L3) Approx. 1100V at perk

#### ■ X-ray protection

●Regarding the parts which are relative to radiation of X-rays ( There is the danger to radiate X-ray from the individual CRT assy R, G, B), there are notifications of caution in the individual schematic diagrams. Be sure to read them for safety's sake.

●The component parts for X-ray protection are as follows : When the current flows to the CRT assy R, G, B, by sure to perform it with these parts being attached. Protection from the X-ray radiation is maintained in the state in which these parts have been installed to the CRT assy R, G, B. Accordingly, never supply current only to the CRT assy R,G,B.

Moreover, the anode voltage of the CRT assy R, G, B should always be kept not higher than the predetermined value (in the minimum brightness and picture state when non signal input is higher than 30.5kV ). Be sure to drive the CRT assy R, G, B by using a completely functional POWER SUPPLY assy which have been adjusted completely in the combined state. (When the voltage abnormally becomes high, the X-ray protection circuit will operate.)

1. CRT assy R, G, B ( Do not dismantle CRT assemblies under any circumstances.)
2. Each Lens assy

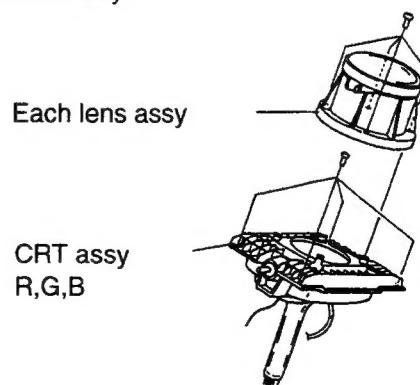


Fig. 2 Component parts for X-ray protection



## 4. EXPLODED VIEWS, PACKING AND PARTS LIST

### NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
  - The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
  - Parts marked by "☉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
  - Parts marked by  $\star$  are important parts which relate to X-rays radiation.
- If any of these parts need to be replaced, always replace with specified parts.

| Mark             | No. | Description  | Part No. | Mark        | No. | Description                                   | Part No. |
|------------------|-----|--|----------|-------------|-----|---|----------|
| $\triangle\star$ | 1   | POWER SUPPLY ASSY<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K) | AWV1499  |             | 19  | P IN P ASSY                                   | AWZ5992  |
| $\triangle\star$ | 1   | POWER SUPPLY ASSY (PRO-98)                                   | AWV1500  |             | 20  | A CONNECTOR ASSY                              | AWZ5994  |
| $\triangle\star$ | 2   | CRT ASSY 51(G)<br>(SD-P5185-K AND SD-P5183-K)                | AWY1320  |             | 21  | B CONNECTOR ASSY                              | AWZ5995  |
|                  |     |  |          |             | 22  | C CONNECTOR ASSY                              | AWZ5996  |
|                  |     |  |          |             | 23  | RELAY DRIVE ASSY                              | AWZ5999  |
| $\triangle\star$ | 2   | CRT ASSY 51(G) (PRO-98)                                      | AWY1326  |             | 24  | SUB CONVERGENCE ASSY                          | AWZ6001  |
| $\triangle\star$ | 2   | CRT ASSY 46(G) (SD-P4683-K)                                  | AWY1314  |             | 25  | VM ASSY (PRO-98 ONLY)                         | AWZ5997  |
| $\triangle\star$ | 3   | CRT ASSY 51(R)<br>(SD-P5185-K AND SD-P5183-K)                | AWY1321  |             | 26  | FRONT INPUT ASSY<br>(PRO-98 ONLY)             | AWZ6003  |
| $\triangle\star$ | 3   | CRT ASSY 51(R) (PRO-98)                                      | AWY1327  |             | 27  | IR RECEIVER ASSY<br>(PRO-98 ONLY)             | AWZ6004  |
| $\triangle\star$ | 3   | CRT ASSY 46(R) (SD-P4683-K)                                  | AWY1315  |             | 28  | PRO S.G ASSY (PRO-98 ONLY)                    | AWZ6005  |
| $\triangle\star$ | 4   | CRT ASSY 51(B)<br>(SD-P5185-K AND PRO-98)                    | AWY1322  |             | 29  | CENTER SP SW ASSY<br>(PRO-98 ONLY)            | AWZ6006  |
| $\triangle\star$ | 4   | CRT ASSY 46(B) (SD-P4683-K)                                  | AWY1316  |             | 30  | SUB RECEIVE ASSY<br>(PRO-98 ONLY)             | AWZ6007  |
|                  | 5   | U-COM-TUNER ASSY<br>(SD-P5185-K)                             | AWV1484  |             |     |   |          |
|                  | 5   | U-COM-TUNER ASSY<br>(SD-P5183-K AND SD-P4683-K)              | AWV1483  |             | 31  | EXT. SP ASSY (PRO-98 ONLY)                    | AWZ6008  |
|                  | 5   | U-COM-TUNER ASSY (PRO-98)                                    | AWV1485  | $\triangle$ | 32  | VR1 FOCUS VR                                  | ACX1096  |
|                  | 6   | CONVERGENCE ASSY   | AWZ5981  | $\triangle$ | 33  | L1 DEFLECTION YOKE                            | ATL1112  |
|                  | 7   | R. CRT DRIVE ASSY  | AWZ5982  | $\triangle$ | 34  | L2 DEFLECTION YOKE                            | ATL1112  |
|                  |     |  |          | $\triangle$ | 35  | L3 DEFLECTION YOKE                            | ATL1112  |
|                  | 8   | G. CRT DRIVE ASSY  | AWZ5983  | $\triangle$ | 36  | FU104 FUSE (6. 3A, 125V)                      | AEK-309  |
|                  | 9   | B. CRT DRIVE ASSY  | AWZ6009  | $\triangle$ | 37  | FU102 FUSE (4A, 125V)                         | AEK1018  |
|                  | 10  | POWER SW ASSY  | AWZ5984  | $\triangle$ | 38  | FU105 FUSE (4A, 125V)                         | AEK1018  |
|                  | 11  | AV I/O ASSY<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K)       | AWZ5985  |             | 39  | CONE SPEAKER                                  | APV1021  |
|                  |     |  |          |             | 40  | MINI REPEATER<br>(SD-P5185-K AND PRO-98 ONLY) | ADF1002  |
|                  | 11  | AV I/O ASSY (PRO-98)   | AWZ5986  |             |     |   |          |
|                  | 12  | Y/C SELECTOR ASSY<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K) | AWZ5987  | $\triangle$ | 41  | AC POWER CORD                                 | ADG1058  |
|                  |     |  |          |             | 42  | MAIN REPEATER                                 | AXF1079  |
|                  | 12  | Y/C SELECTOR ASSY (PRO-98)                                   | AWZ5988  |             |     |   |          |
|                  | 13  | FRONT CONTROL ASSY<br>(SD-P5185-K)                           | AWZ5990  |             | 43  | J11 4P HOUSING WIRE                           | ADX2179  |
|                  |     |  |          |             | 44  | J4 1P LEAD WIRE                               | ADX2180  |
|                  | 13  | FRONT CONTROL ASSY<br>(SD-P5183-K AND SD-P4683-K)            | AWZ5989  |             | 45  | J5 1P LEAD WIRE                               | ADX2181  |
|                  | 13  | FRONT CONTROL ASSY (PRO-98)                                  | AWZ6002  |             | 46  | J6 1P LEAD WIRE                               | ADX2182  |
|                  | 14  | P IN P SELECTOR ASSY   | AWZ5993  |             | 47  | J7 1P LEAD WIRE                               | ADX2183  |
|                  | 15  | SYSTEM CONTROL ASSY<br>(SD-P5185-K AND PRO-98 ONLY)          | AWZ5998  |             | 48  | J8 1P LEAD WIRE                               | ADX2184  |
|                  |     |  |          |             | 49  | J9 1P LEAD WIRE                               | ADX2185  |
|                  | 16  | PHOTO DIODE ASSY<br>(SD-P5185-K AND PRO-98 ONLY)             | AWZ7657  |             | 50  | J2 2P HOUSING WIRE                            | ADX2187  |
|                  |     |  |          |             | 51  | WIRE HARNESS                                  | ADX2195  |
|                  | 17  | RF AMP ASSY<br>(SD-P5185-K AND PRO-98 ONLY)                  | AWZ7658  |             | 52  | J24 4P HOUSING WIRE                           | ADX2196  |
|                  |     |  |          |             |     | (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)  |          |
|                  | 18  | CONVERGENCE PD ASSY  | AWZ5991  |             | 53  | .....   |          |

**SD-P5185-K, SD-P5183-K,  
SD-P4683-K, PRO-98**

| Mark | No. | Description  | Part No. |
|------|-----|--|----------|
|      | 54  | J11 8P HOUSING WIRE<br>(PRO-98 ONLY)                                 | ADX2199  |
|      | 55  | J12 7P HOUSING WIRE<br>(PRO-98 ONLY)                                 | ADX2200  |
| △    | 56  | J1 ANODE CABLE<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K)            | ADY1012  |
| △    | 56  | J1 ANODE CABLE (PRO-98)  | ADY1022  |
| NSP  | 57  | CRT STAND (51)<br>(SD-P5185-K, SD-P5183-K AND PRO-98)                | ANA1500  |
| NSP  | 57  | CRT STAND (46)<br>(SD-P4683-K)                                       | ANA1501  |
| NSP  | 58  | CRT STAND HOLDER L   | ANA1503  |
| NSP  | 59  | CRT STAND HOLDER R   | ANA1504  |
| NSP  | 60  | CHASSIS R  | ANA1505  |
|      | 61  | REAR PANEL (SD-P5185-K)  | ANC2259  |
|      | 61  | REAR PANEL<br>(SD-P5183-K AND SD-P4683-K)                            | ANC2258  |
|      | 61  | REAR PANEL (PRO-98)  | ANC2260  |
|      | 62  | BOTTOM RAIL 51<br>(SD-P5185-K AND SD-P5183-K ONLY)                   | AMR2714  |
|      | 62  | BOTTOM RAIL 46<br>(SD-P4683-K ONLY)                                  | AMR2715  |
| NSP  | 63  | CORD PLATE   | ANG1650  |
| NSP  | 64  | PCB FRAME  | ANG1849  |
| NSP  | 65  | SWITCH HOLDER<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)        | ANG1945  |
| NSP  | 66  | VR HOLDER  | ANG1956  |
| NSP  | 67  | SCREEN METAL FITTING<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY) | ANG1992  |
| NSP  | 68  | SCREEN SIDE FITTING  | ANG1993  |
| NSP  | 69  | DOLBY MOD. STAY<br>(SD-P5185-K AND PRO-98 ONLY)                      | ANG1999  |
|      | 70  | .....  |          |
|      | 71  | NYLON BINDER   | AEC-093  |
|      | 72  | RIVET<br>(SD-P5185-K AND PRO-98 ONLY)                                | AEC-441  |
| NSP  | 73  | PURSE LOCK S   | AEC1261  |
|      | 74  | V ROCK 20M   | AEC1610  |
| NSP  | 75  | LEAD CLAMPER M   | AEC1611  |
|      | 76  | SCREEN CUSHION 51<br>(SD-P5185-K AND SD-P5183-K)                     | AEC1612  |
|      | 76  | SCREEN CUSHION 46<br>(SD-P4683-K)                                    | AEC1616  |
|      | 76  | SCREEN CUSHION 51P<br>(PRO-98)                                       | AEC1621  |
|      | 77  | INDICATOR PANEL<br>(SD-P5185-K)                                      | AAK2618  |
|      | 77  | INDICATOR PANEL<br>(SD-P5183-K)                                      | AAK2620  |
|      | 77  | INDICATOR PANEL<br>(SD-P4683-K)                                      | AAK2625  |
|      | 78  | FRAME CUSHION<br>(SD-P5185-K AND SD-P5183-K)                         | AEC1618  |
|      | 78  | FRAME CUSHION 46<br>(SD-P4683-K ONLY)                                | AEC1619  |

| Mark | No. | Description  | Part No.     |
|------|-----|--|--------------|
|      | 79  | BLIND SHEET(PVC)   | AEC1622      |
|      | 80  | BACK COVER CUSHION   | AEC1625      |
|      | 81  | MIRROR CASE CUSHION  | AEC1627      |
|      | 82  | AC CORD STOPPER  | AEP-113      |
|      | 83  | BINDER   | AEP-215      |
| ☆    | 84  | LENS ASSY (51)<br>(SD-P5185-K, SD-P5183-K AND PRO-98 ONLY)         | AMR2719      |
| ☆    | 85  | LENS ASSY (R)<br>(SD-P4683-K ONLY)                                 | AMR2387      |
| ☆    | 86  | LENS ASSY (G)<br>(SD-P4683-K ONLY)                                 | AMR2388      |
| ☆    | 87  | LENS ASSY (B)<br>(SD-P4683-K ONLY)                                 | AMR2389      |
|      | 88  | LENTICULAR SHEET(51)<br>(SD-P5185-K AND SD-P5183-K)                | AMR2726      |
|      | 88  | LENTICULAR SHEET(46)<br>(SD-P4683-K)                               | AMR2730      |
|      | 88  | LENTICULAR SHEET(51)<br>(PRO-98)                                   | AMR2751      |
|      | 89  | MIRROR(51A)  | AMR2735      |
|      | 90  | FRESNEL (51)<br>(SD-P5185-K AND SD-P5183-K)                        | AMR2758      |
|      | 90  | FRESNEL (46) (SD-P4683-K)  | AMR2759      |
|      | 90  | FRESNEL (51) (PRO-98)  | AMR2754      |
|      | 91  | SPECIAL SCREW  | ABA1080      |
|      | 92  | SCREW  | ABA1099      |
|      | 93  | SPECIAL SCREW  | ABA1121      |
|      | 94  | SCREW  | ABA1149      |
|      | 95  | SCREW  | ABA1168      |
|      | 96  | SCREW  | ABA1188      |
|      | 97  | M5 SCREW   | ABA1189      |
|      | 98  | SCREW  | ABA1190      |
|      | 99  | SPECIAL SCREW<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)      | ABA1225      |
|      | 100 | SPECIAL SCREW<br>(PRO-98 ONLY)                                     | ABA1226      |
| NSP  | 101 | BOTTOM RAIL HOLDER<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY) | ANG1991      |
|      | 102 | SCREW  | ABZ30P080FZK |
|      | 103 | SCREW  | ABZ30P120FZK |
|      | 104 | SCREW  | ACZ40P080FMC |
|      | 105 | SCREW  | AMZ40P080FZK |
|      | 106 | SCREW (PRO-98 ONLY)  | APZ30P080FZK |
|      | 107 | SCREW (PRO-98 ONLY)  | APZ40P120FZK |
|      | 108 | SCREW  | BBZ30P080FZK |
|      | 109 | SCREW  | BBZ30P120FZK |
|      | 110 | SCREW (PRO-98 ONLY)  | BMZ40P100FZK |
|      | 111 | SCREW<br>(SD-P5185-K AND SD-P5183-K ONLY)                          | BPZ30P120FZK |
|      | 112 | SCREW  | PYC35T160FZK |
|      | 113 | SCREW  | BYC35P160FZK |
|      | 114 | SCREW  | BYC40P160FMC |
|      | 115 | SCREW  | BYC40P180FMC |
|      | 116 | SCREW  | FBT40P120FZK |
|      | 117 | SCREW<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)              | PMB30P080FZK |
|      | 118 | SCREW  | VBT30P080FZK |
|      | 119 | SCREW  | VCZ30P060FMC |

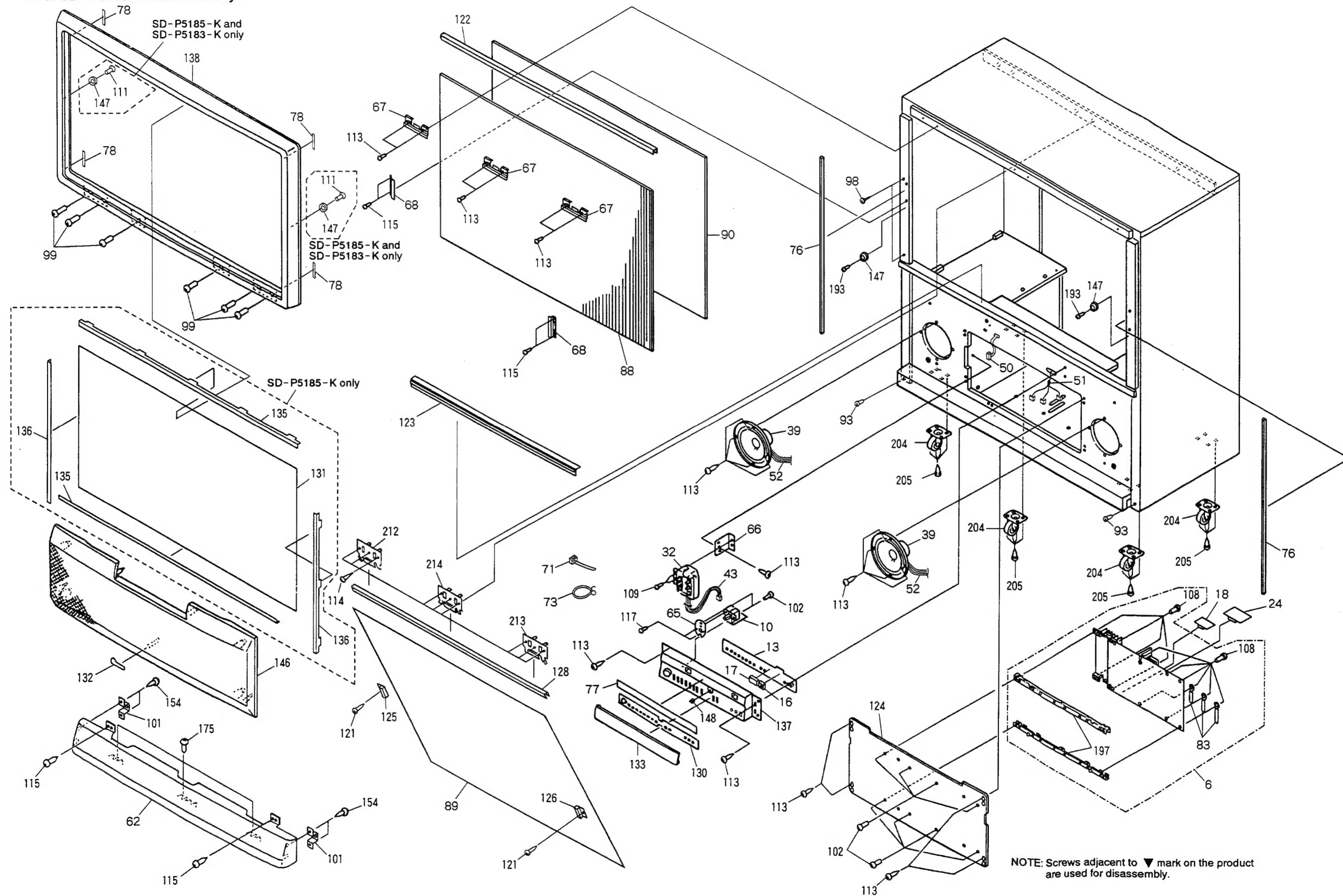
| Mark | No. | Description  | Part No.     | Mark | No. | Description  | Part No.     |
|------|-----|--|--------------|------|-----|--|--------------|
|      | 120 | SCREW (PRO-98 ONLY)  | VPZ40P120FMC |      | 144 | REAR COVER   | AMM2416      |
|      | 121 | SCREW  | VPZ40P160FZK | NSP  | 145 | CRT BACK BOARD   | AMM2417      |
|      | 122 | SCREEN HOLDER TOP 51<br>(SD-P5185-K AND SD-P5183-K)            | AAP1500      |      | 146 | GRILLE 51<br>(SD-P5185-K AND SD-P5183-K)                         | AMR2711      |
|      | 122 | SCREEN HOLDER TOP 46<br>(SD-P4683-K)                           | AAP1501      |      | 146 | GRILLE 46 (SD-P4683-K)   | AMR2712      |
|      | 122 | SCREEN HOLDER TOP 51P<br>(PRO-98)                              | AAP1525      |      | 146 | GRILLE (51) (PRO-98)   | AMR2491      |
|      | 123 | SCREEN HOLDER LOW 51P<br>(SD-P5185-K AND SD-P5183-K)           | AAP1503      |      | 147 | MAGIC TAPE   | AEC1394      |
|      | 123 | SCREEN HOLDER LOW 46<br>(SD-P4683-K)                           | AAP1504      |      | 148 | CATCHER F2M  | AEC1609      |
|      | 123 | SCREEN HOLDER LOW 51P<br>(PRO-98)                              | AAP1522      |      | 149 | OPERATING INSTRUCTIONS<br>(ENGLISH) (SD-P5185-K)                 | ARB1493      |
|      | 124 | BLIND PLATE  | AMM2414      |      | 149 | OPERATING INSTRUCTIONS<br>(ENGLISH) (SD-P5183-K AND SD-P4683-K)  | ARB1492      |
|      | 125 | MIRROR SIDE HOLDER L   | AMR2470      |      | 149 | OPERATING INSTRUCTIONS<br>(ENGLISH) (PRO-98)                     | ARB1495      |
|      | 126 | MIRROR SIDE HOLDER R   | AMR2471      |      | 150 | ATTENTION CARD   | ARM1054      |
| NSP  | 127 | TRAY (PLS)   | AMR2563      | NSP  | 151 | P IN P NOTES   | ARM1066      |
|      | 128 | MIRROR FRAME H   | ANG2019      | NSP  | 152 | SAFEGUARD CARD   | ARM1075      |
| NSP  | 129 | ACRYLIC PANEL(51)<br>(PRO-98 ONLY)                             | AAK2632      |      | 153 | CONVER ATTENTION CARD  | ARM1109      |
|      | 130 | CONTROL SHEET<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)  | AAK2619      |      | 154 | SCREW<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)            | BYC35P120FZB |
|      | 131 | SCREEN COVER PANEL(51)<br>(SD-P5185-K ONLY)                    | AAK2628      | NSP  | 155 | WARRANTY CARD<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K)         | ARY1050      |
|      | 132 | BADGE<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K)               | AAM1069      | NSP  | 155 | WARRANTY CARD (PRO-98)   | ARY1026      |
|      | 132 | BADGE (PRO-98)   | AAM1062      |      | 156 | REMOTE CONTOROL (GUI) ASSY<br>(CU-SD092) (SD-P5185-K AND PRO-98) | AXD1415      |
|      | 133 | DOOR<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)           | AAN1406      |      | 156 | REMOTE CONTOROL ASSY<br>(CU-SD091) (SD-P5183-K AND SD-P4683-K)   | AXD1416      |
|      | 134 | DOOR ASSY (PRO-98 ONLY)  | AAN1413      | NSP  | 157 | BATTERY COVER  | AZN7187      |
| NSP  | 135 | PANEL HOLDER (51H)<br>(SD-P5185-K ONLY)                        | AAP1538      |      | 158 | ALKALINE BATTERY(LR6, AA)  | AEX1018      |
|      | 136 | PANEL HOLDER (51V)<br>(SD-P5185-K ONLY)                        | AAP1539      |      | 159 | UPPER PAD L<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K)           | AHA2056      |
|      | 137 | CONTROL PANEL<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)  | AMB2524      |      | 159 | UPPER PAD L (PRO-98)   | AHA2067      |
|      | 138 | SCREEN FRAME ASSY 51A<br>(SD-P5185-K)                          | AMB2550      |      | 160 | UPPER PAD R<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K)           | AHA2057      |
|      | 138 | SCREEN FRAME ASSY 51<br>(SD-P5183-K)                           | AMB2547      |      | 160 | UPPER PAD R (PRO-98)   | AHA2068      |
|      | 138 | SCREEN FRAME ASSY 46<br>(SD-P4683-K)                           | AMB2548      |      | 161 | UNDER PAD L<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K)           | AHA2058      |
|      | 138 | SCREEN FRAME ASSY 51<br>(PRO-98)                               | AAP1514      |      | 161 | UNDER PAD L (PRO-98)   | AHA2069      |
|      | 139 | FRAME COVER ASSY (51)<br>(PRO-98 ONLY)                         | AAP1520      |      | 162 | UNDER PAD R<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K)           | AHA2059      |
|      | 140 | FRAME COVER V (51)<br>(PRO-98 ONLY)                            | AAP1536      | NSP  | 162 | UNDER PAD R (PRO-98)   | AHA2070      |
|      | 141 | MIRROR CASE (51)   | AME2296      |      | 163 | CUSHION A  | AHA2074      |
| NSP  | 142 | BACK COVER PANEL 51<br>(SD-P5185-K, SD-P5183-K AND SD-P4683-K) | AMM2415      |      | 164 | CU PACKING CASE<br>(SD-P5185-K AND PRO-98)                       | AHC1023      |
| NSP  | 142 | BACK COVER PANEL 51(B)<br>(PRO-98)                             | AMM2507      |      | 164 | CU PACKING CASE<br>(SD-P5183-K AND SD-P4683-K)                   | AHC1019      |
|      | 143 | CORRUGATION BOARD CASE 51<br>(SD-P5185-K AND PRO-98 ONLY)      | AHB1152      |      | 165 | UPPER CARTON (51A)<br>(SD-P5185-K)                               | AHD2799      |
|      |     |  |              |      | 165 | UPPER CARTON (51)<br>(SD-P5183-K)                                | AHD2792      |
|      |     |  |              |      | 165 | UPPER CARTON (46)<br>(SD-P4683-K)                                | AHD2797      |
|      |     |  |              |      | 165 | UPPER CARTON (51)<br>(PRO-98)                                    | AHD2807      |
|      |     |  |              |      | 166 | UNDER CARTON (51)<br>(SD-P5185-K AND SD-P5183-K)                 | AHD2793      |
|      |     |  |              |      | 166 | UNDER CARTON (46)<br>(SD-P4683-K)                                | AHD2798      |

**SD-P5185-K, SD-P5183-K,  
SD-P4683-K, PRO-98**

| Mark | No. | Description   | Part No.     | Mark | No. | Description   | Part No. |
|------|-----|---|--------------|------|-----|---|----------|
|      | 166 | UNDER CARTON (51)<br>(PRO-98)   | AHD2808      | △    | 203 | FU101 FUSE (8A, 125V)                                 | AEK1002  |
|      | 167 | CORRUGATION BOARD SPACER<br>(51A) (SD-P5185-K ONLY)   | AHB1159      |      | 204 | CASTER  | AMR2547  |
|      | 167 | CORRUGATION BOARD SPACER<br>(51) (PRO-98 ONLY)  | AHB1161      |      | 205 | SCREW   | ABA1126  |
| NSP  | 168 | PACKING SEAT M  | AHG1094      |      | 206 | COIL SPRING (PRO-98 ONLY)                             | ABH1099  |
| NSP  | 169 | VINYL SEAT XL   | AHG1095      | NSP  | 207 | SUB PANEL (PRO-98 ONLY)                               | AMB2555  |
| NSP  | 170 | PACKING SHEET   | AHG1156      |      | 208 | POWER KNOB (PRO-98 ONLY)                              | AAD4090  |
| NSP  | 171 | PACKING SHEET (PRO-98 ONLY)   | AHG1120      | NSP  | 209 | BADGE BASE (PRO-98 ONLY)                              | AAK2631  |
| NSP  | 172 | VINYL BAG (PRO-98 ONLY)   | AHG1076      |      | 210 | TV FRONT-END SYSTEM UNIT                              | AXF1077  |
|      | 173 | LITERATURE BAG  | AHG1222      |      | 211 | RF SWITCH   | AXF1078  |
| NSP  | 174 | SCREEN SHEET (51)   | AHG1228      | NSP  | 212 | MIRROR UPPER STAY L                                   | ANG2004  |
|      | 175 | SCREW   | ABA1223      |      | 213 | MIRROR UPPER STAY R                                   | ANG2005  |
| NSP  | 176 | (SD-P5185-K, SD-P5183-K AND SD-P4683-K ONLY)<br>ACRYLIC PACKING SHEET (51)<br>(SD-P5185-K ONLY) | AHG1237      | NSP  | 214 | MIRROR UPPER STAY C                                   | ANG2006  |
| NSP  | 177 | BNC SOCKET (PRO-98 ONLY)  | AKX1036      |      | 215 | PACKING SHEET   | AHG1237  |
|      | 178 | SUB PANEL ASSY (PRO-98 ONLY)  | AMB2556      |      | 216 | REPEATER PACKING CASE<br>(SD-P5185-K AND PRO-98 ONLY) | AHC1024  |
|      | 179 | SIDE PANEL ASSY (51L)<br>(PRO-98 ONLY)  | AMB2558      |      | 217 | MAIN REPEATER<br>(SD-P5185-K AND PRO-98 ONLY)         | AXF1079  |
|      | 180 | SIDE PANEL ASSY (51R)<br>(PRO-98 ONLY)  | AMB2559      |      | 218 | MAGIC TAPE A<br>(SD-P5185-K AND PRO-98 ONLY)          | AEC1630  |
|      | 181 | FRONT PANEL ASSY<br>(PRO-98 ONLY)   | AMB2562      |      | 219 | MAGIC TAPE B<br>(SD-P5185-K AND PRO-98 ONLY)          | AEC1631  |
|      | 182 | BNC CAP (PRO-98 ONLY)   | AMR2314      |      | 220 | MINI REPEATER<br>(SD-P5185-K AND PRO-98 ONLY)         | ADF1002  |
|      | 183 | SIDE COVER (PRO-98 ONLY)  | AMR2573      |      | 221 | FRONT SHEET (PVC)<br>(PRO-98 ONLY)                    | AEC1635  |
| NSP  | 184 | CABINET UPPER HOLDER<br>(PRO-98 ONLY)   | ANG2000      |      | 222 | FRAME CUSHION P<br>(PRO-98 ONLY)                      | AEC1634  |
| NSP  | 185 | SCREEN UPPER HOLDER A<br>(PRO-98 ONLY)  | ANG2001      |      |     |   |          |
| NSP  | 186 | SCREEN UPPER HOLDER B<br>(PRO-98 ONLY)  | ANG2002      |      |     |   |          |
| NSP  | 187 | SCREEN UNDER HOLDER A<br>(PRO-98 ONLY)  | ANG2003      |      |     |   |          |
| NSP  | 188 | SCREEN UNDER HOLDER B<br>(PRO-98 ONLY)  | ANG2009      |      |     |   |          |
| NSP  | 189 | FRONT SHIELD (PRO-98 ONLY)  | ANK1502      |      |     |   |          |
| NSP  | 190 | CATCH A (PRO-98 ONLY)   | ANZ-241      |      |     |   |          |
|      | 191 | CONE SPEAKER (TWEETER)<br>(PRO-98 ONLY)   | APT1004      |      |     |   |          |
|      | 192 | TECHNICAL NOTE<br>(PRO-98 ONLY)   | ARB1496      |      |     |   |          |
|      | 193 | SCREW   | BYC35P160FZB |      |     |   |          |
|      | 194 | ACRYLIC CAUTION CARD<br>(SD-P5185-K)  | ARH1149      |      |     |   |          |
|      | 194 | ACRYLIC CAUTION CARD<br>(PRO-98)  | ARH1146      |      |     |   |          |
|      | 195 | ATTENTION CARD (ELITE)<br>(PRO-98 ONLY)   | ARM1108      |      |     |   |          |
|      | 196 | VM COIL (PRO-98 ONLY)   | ATL1121      |      |     |   |          |
| NSP  | 197 | CONVERGENCE STAY  | AND1058      |      |     |   |          |
| NSP  | 198 | CHASSIS L   | ANA1509      |      |     |   |          |
|      | 199 | SCREW   | PPZ40P120FMC |      |     |   |          |
|      | 200 | SCREW   | ABZ30P100FMC |      |     |   |          |
|      | 201 | BADGE BASE ASSY<br>(PRO-98 ONLY)  | AAK2641      |      |     |   |          |
| NSP  | 202 | CR HOLDER (PRO-98 ONLY)   | ANG1867      |      |     |   |          |

# (1) FRONT VIEW [1]

• For SD-P5185-K and 83 family





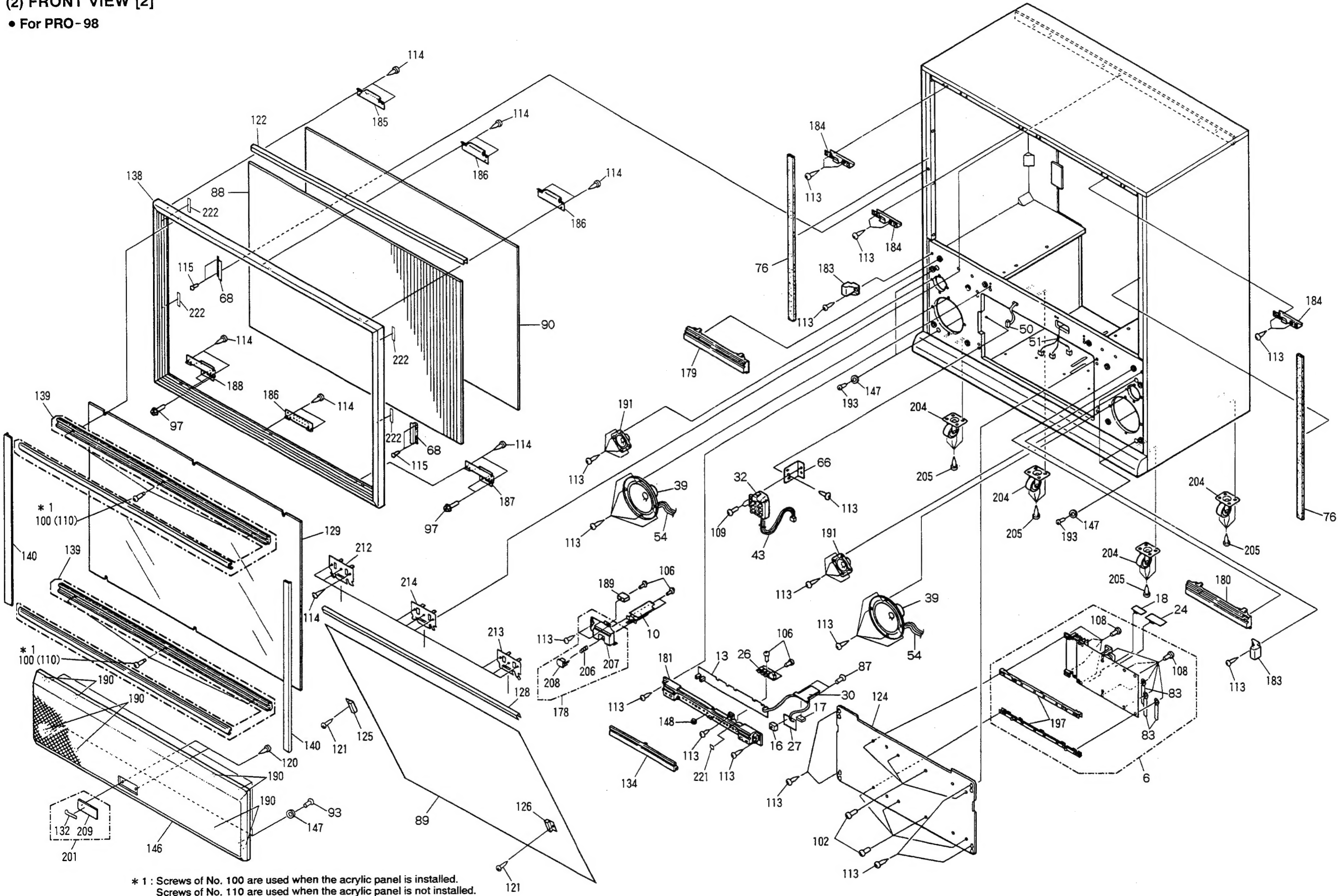
(2) FRONT VIEW [2]  
• For PRO-98

A

B

C

D



\* 1 : Screws of No. 100 are used when the acrylic panel is installed.  
Screws of No. 110 are used when the acrylic panel is not installed.

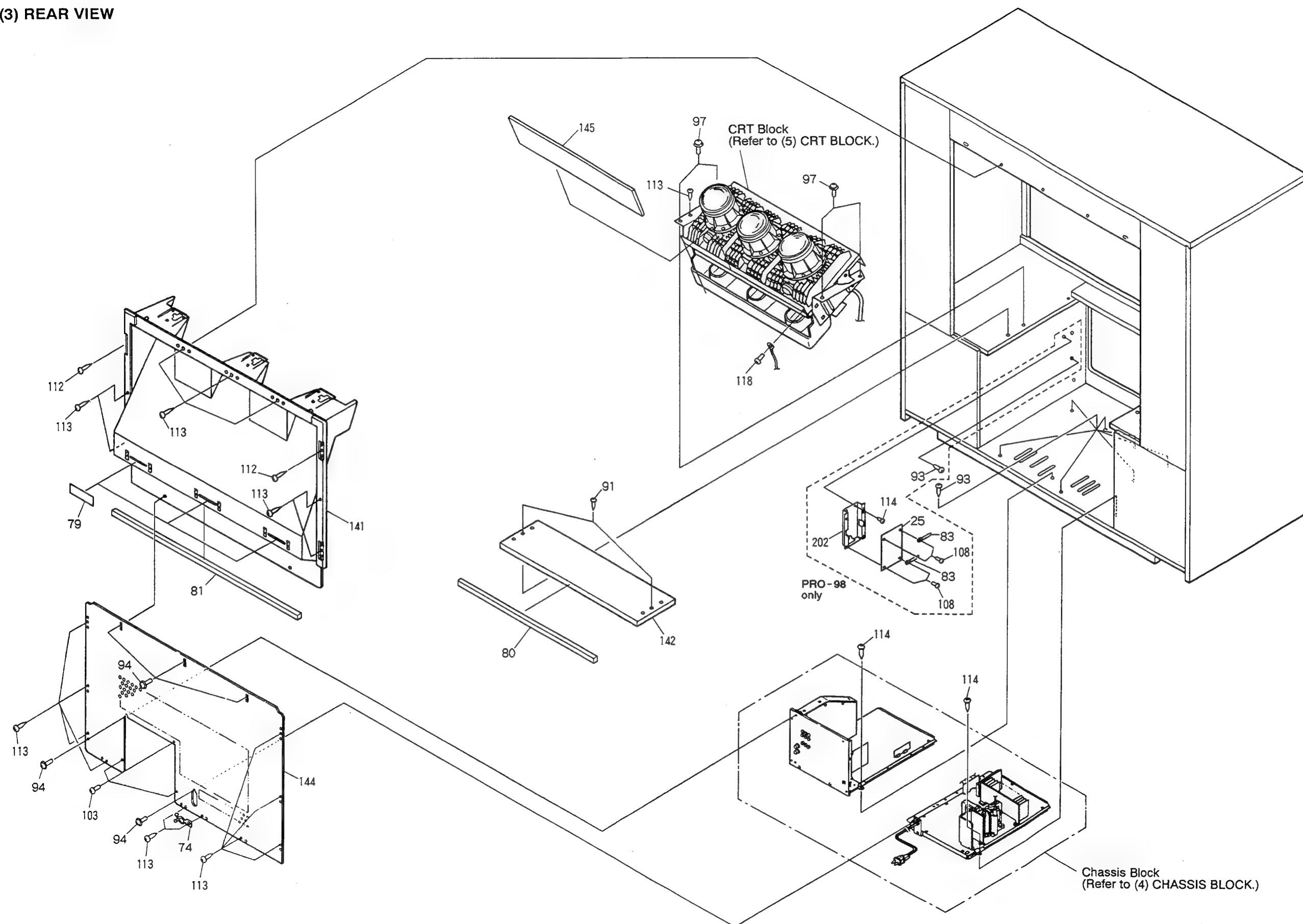
A

B

C

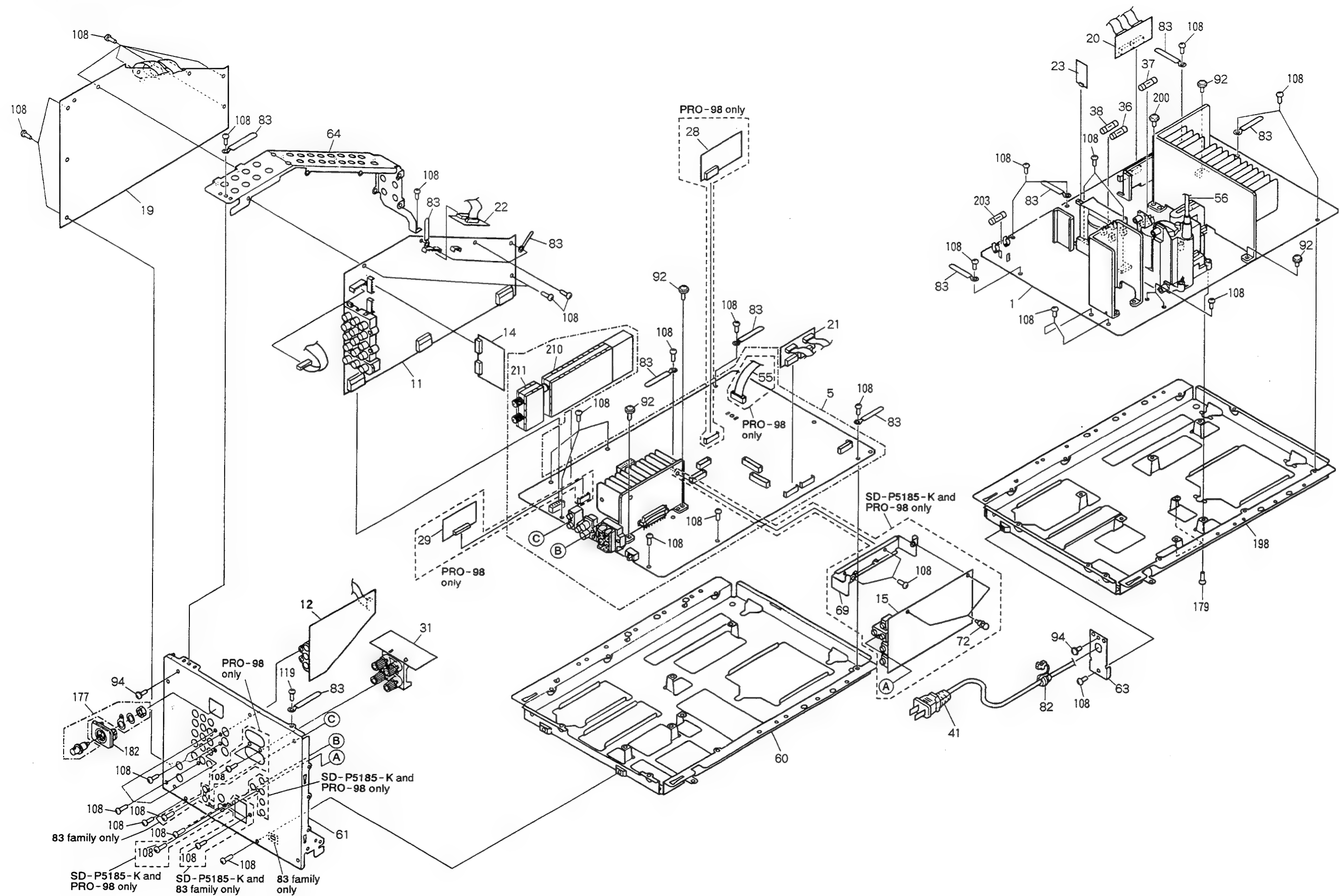
D

(3) REAR VIEW



SD-P5185-K, SD-P5183-K,  
SD-P4683-K, PRO-98

(4) CHASSIS BLOCK



(5) CRT BLOCK

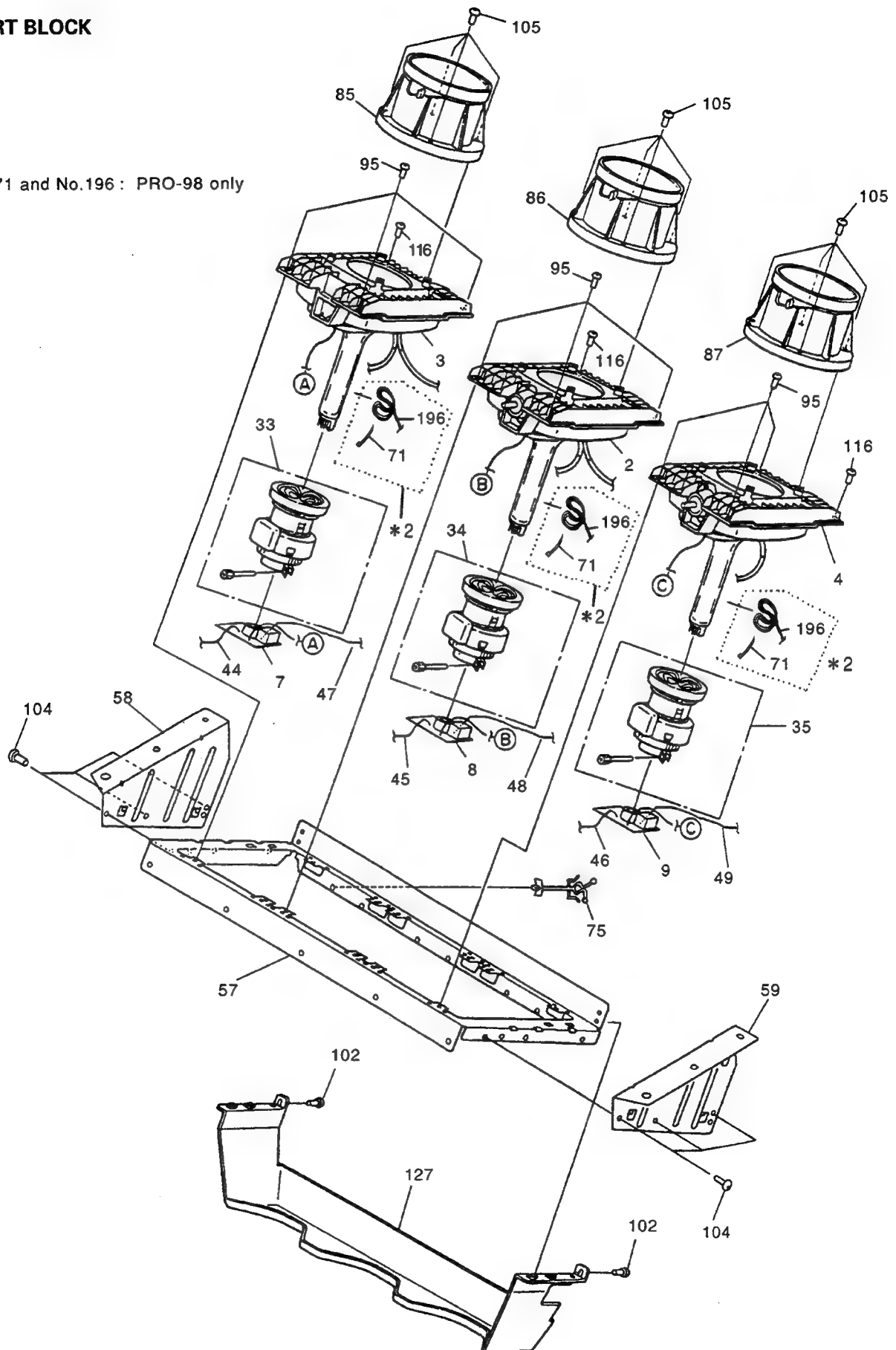
A

\*2:  
No.71 and No.196 : PRO-98 only

B

C

D



SD-P5185-K,SD-P5183-K,  
SD-P4683-K,PRO-98

2

3

A

A

B

B

C

C

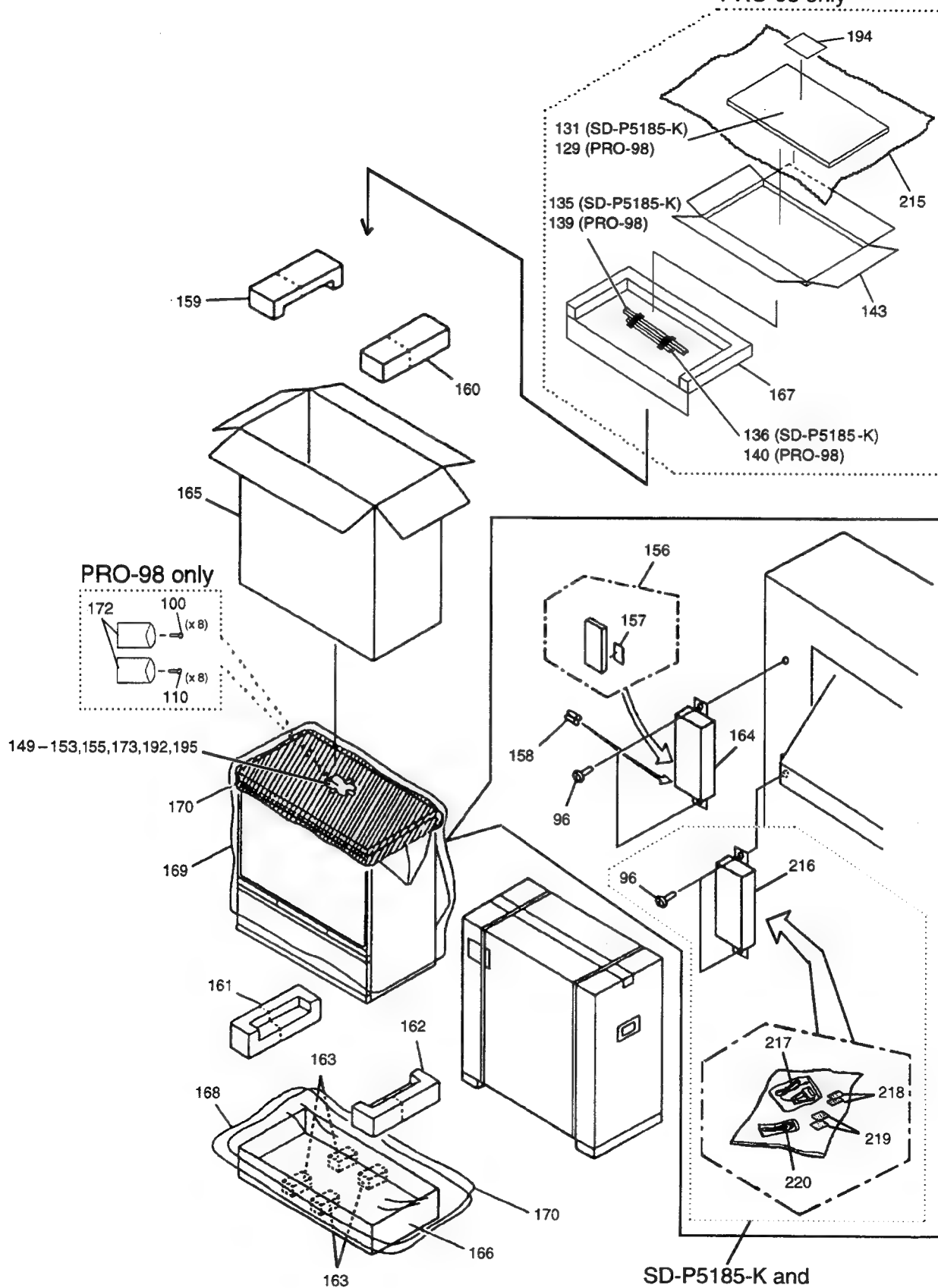
D

D

SD-P5185-K and  
PRO-98 only

PRO-98 only

SD-P5185-K and  
PRO-98 only





## 5. REMOTE CONTROL UNIT

### NOTES:

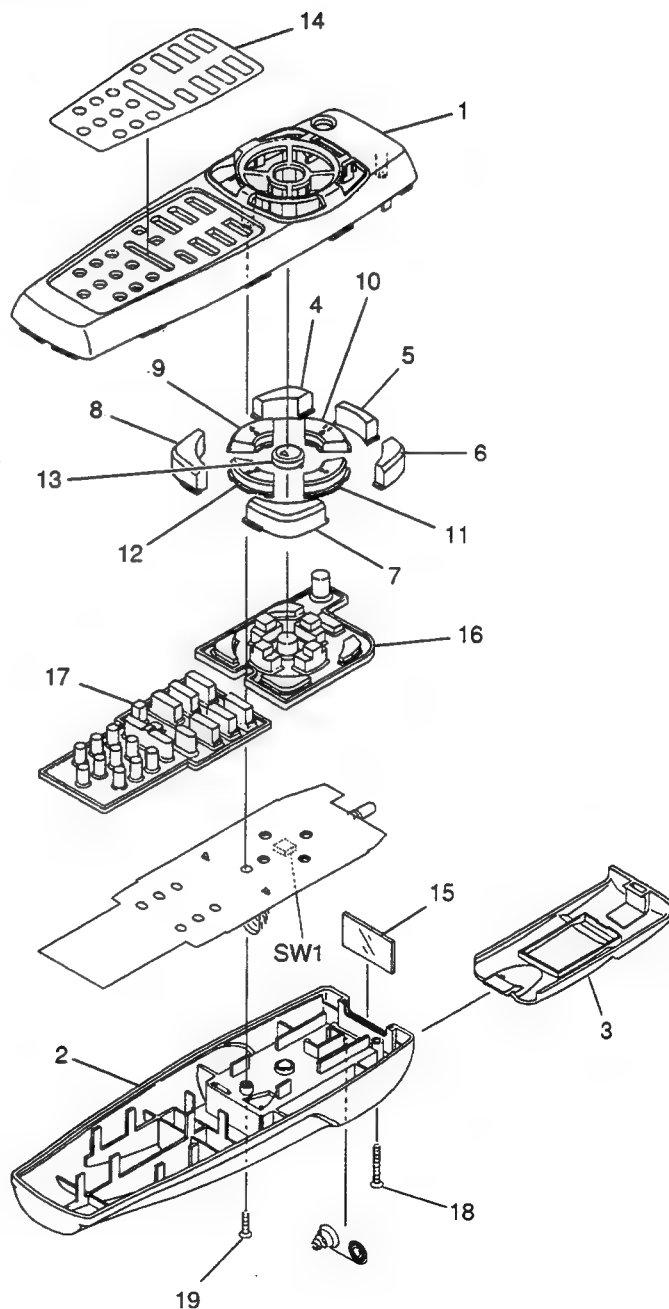
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The "⚠" mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

### REMOTE CONTROL UNIT [ AXD1415 (CU-SD092) ]

(For SD-P5185-K and PRO-98)

#### Exploded View and Parts List

| Mark | No. | Description      | Parts No. |
|------|-----|------------------|-----------|
|      | 1   | Case A           | AZN2305   |
|      | 2   | Case B           | AZN7189   |
|      | 3   | Battery cover    | AZN7187   |
|      | 4   | Main key (POWER) | AZN7190   |
|      | 5   | Main key (MENU)  | AZN2306   |
|      | 6   | Main key (CHECK) | AZN7192   |
|      | 7   | Main key (+)     | AZN7193   |
|      | 8   | Main key (−)     | AZN7194   |
|      | 9   | Main key (REW)   | AZN7195   |
|      | 10  | Main key (PAUSE) | AZN2307   |
|      | 11  | Main key (FF)    | AZN7197   |
|      | 12  | Main key (STOP)  | AZN2308   |
|      | 13  | Main key (PLAY)  | AZN2309   |
|      | 14  | Name plate       | AZA2016   |
|      | 15  | Filter           | AZA7101   |
|      | 16  | Rubber sheet A   | AZA7102   |
|      | 17  | Rubber sheet B   | AZA2017   |
|      | 18  | Screw            | AZB7022   |
|      | 19  | Screw            | AZB7023   |



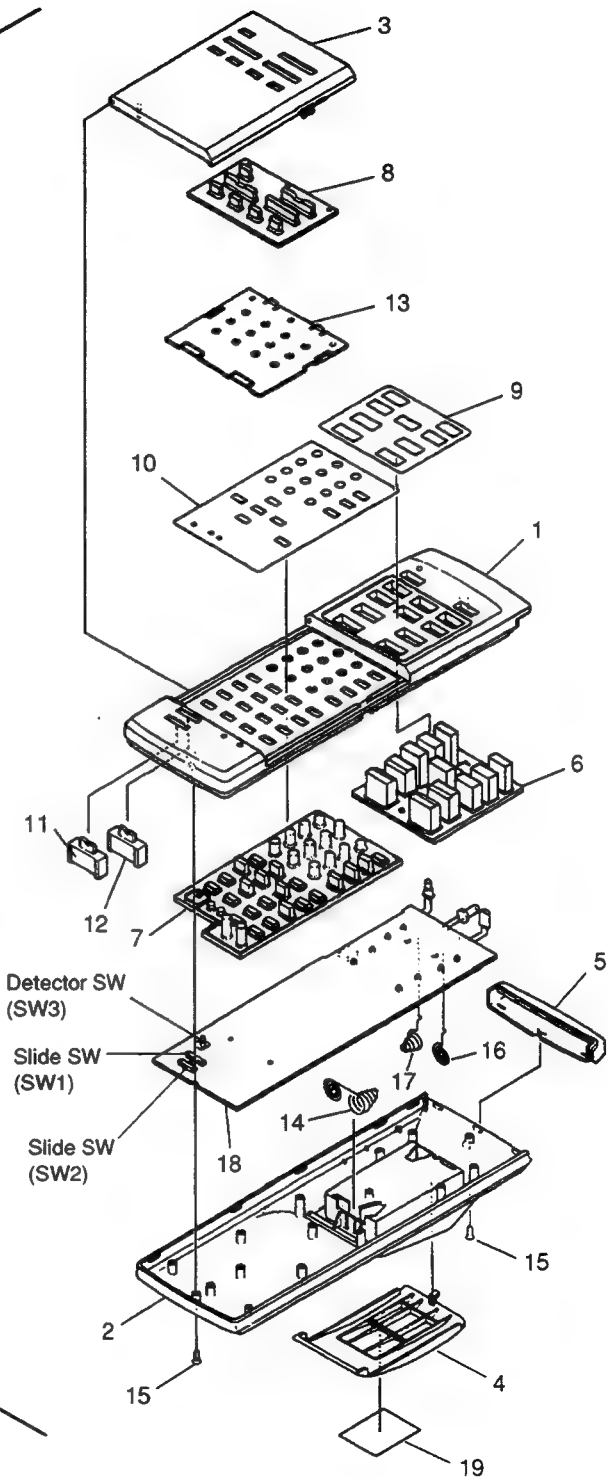
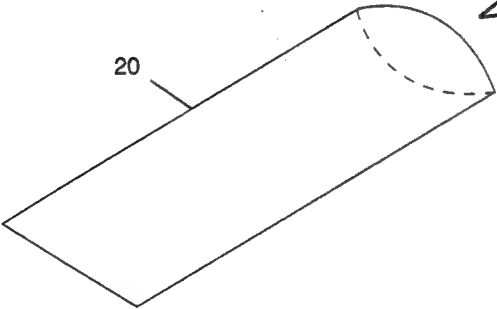
#### Parts List of Semiconductors and Switches

| Mark | No.      | Description    | Parts No.   |
|------|----------|----------------|-------------|
|      | IC1      | UPD17215GT-544 | AZC7073     |
|      | Q1       |                | MSB709-RT2  |
|      | Q2       |                | 2SD1664     |
|      | D1       |                | M1MA151WKT2 |
|      | D2       | LED            | DNP318U     |
|      | D3 - D12 | LED            | LBR2272S    |
|      | X1       | Resonator      | PBRC4.50AR  |
|      | SW1      | SW             | AZS1118     |

REMOTE CONTROL UNIT [ AXD1416 (CU-SD091) ]  
(For SD-P5183-K and SD-P4683-K)

A Exploded View and Parts List

| Mark | No. | Description       | Parts No. |
|------|-----|-------------------|-----------|
|      | 1   | Case A            | AZA2008   |
|      | 2   | Case B            | AZA1431   |
|      | 3   | Door              | AZA2009   |
|      | 4   | Battery cover     | AZA1505   |
|      | 5   | Filter            | AZA1387   |
|      | 6   | Rubber sheet A    | AZA2010   |
|      | 7   | Rubber sheet B    | AZA2011   |
|      | 8   | Rubber sheet C    | AZA2012   |
|      | 9   | Name plate A      | AZA2013   |
|      | 10  | Name plate B      | AZA2014   |
|      | 11  | Knob A            | AZA1393   |
|      | 12  | Knob B            | AZA1394   |
|      | 13  | Spacer            | AZA1396   |
|      | 14  | Spring            | AZB1268   |
|      | 15  | Screw             | AZB1368   |
|      | 16  | Spring (+)        | AZB1366   |
|      | 17  | Spring (-)        | AZB1367   |
| NSP  | 18  | P.W.B             | AZN2188   |
|      | 19  | Remote unit label | AZA2007   |
|      | 20  | Vinyl bag         | AZE1091   |

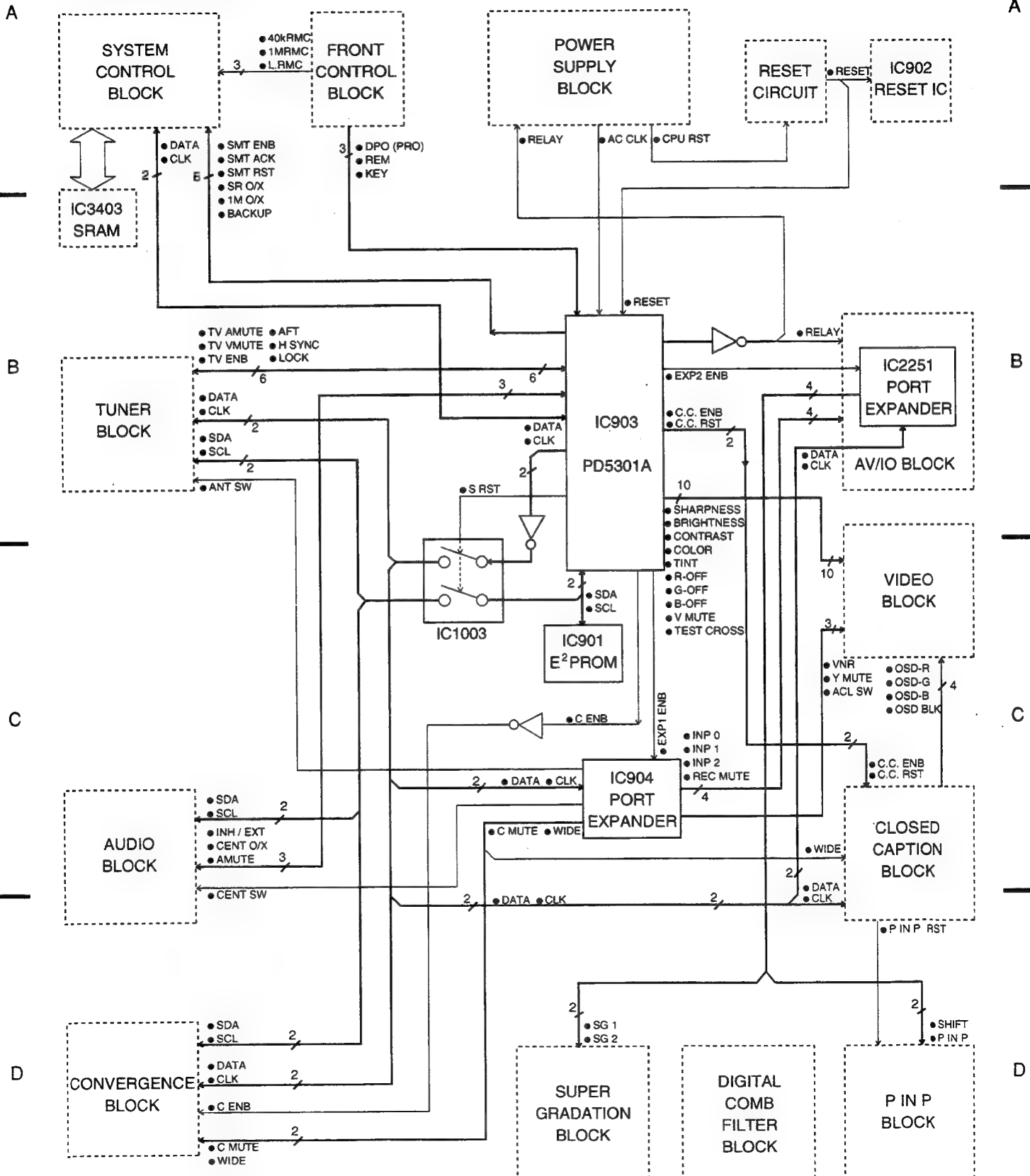


Parts List of Semiconductors and Switches

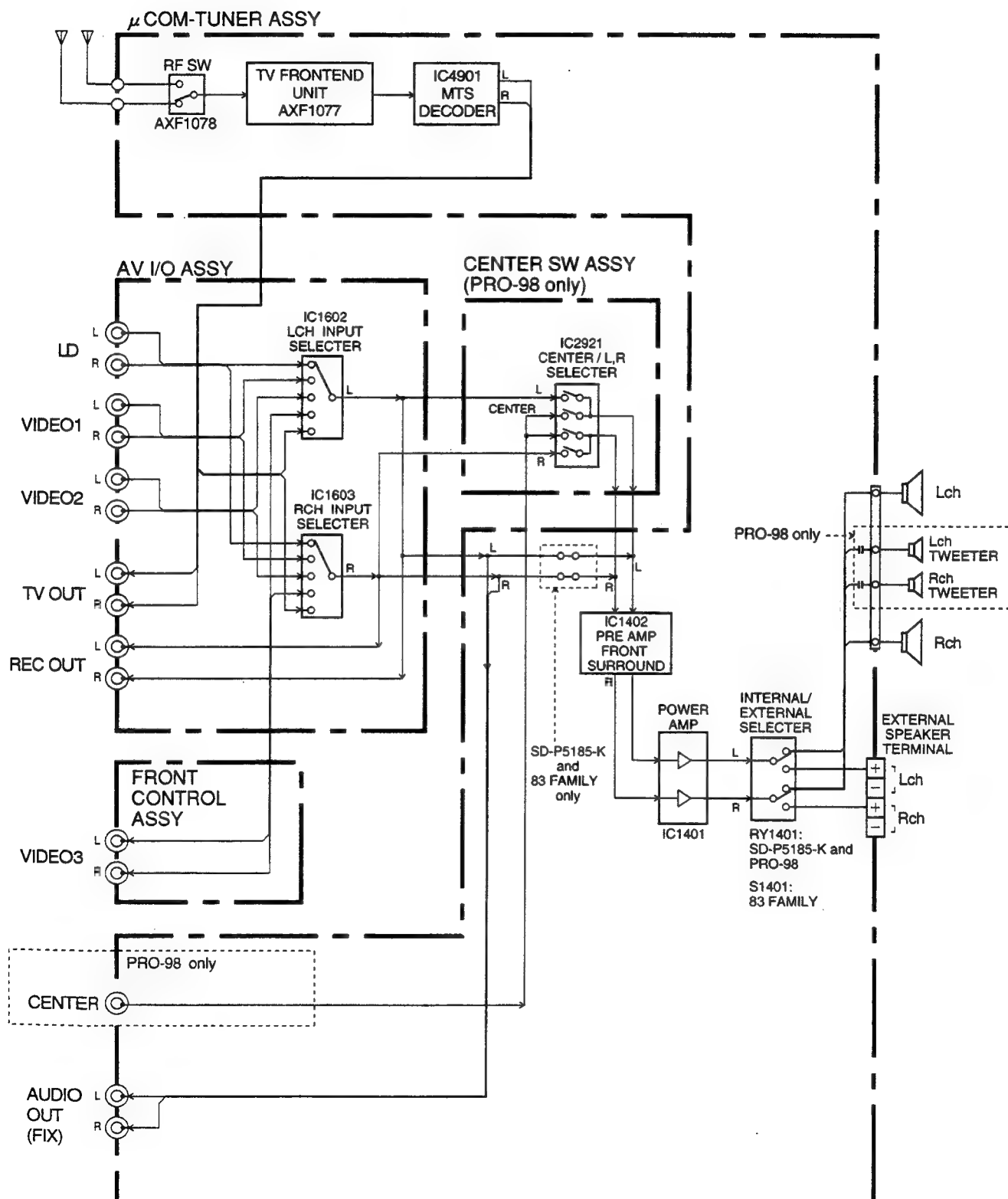
| Mark | No.     | Description        | Parts No.  |
|------|---------|--------------------|------------|
|      | IC1     | UPD17204GC-544-3BH | AZQ1054    |
|      | Q1, Q2  |                    | 2SD1664    |
|      | Q3      | Voltage detector   | AZC1582    |
|      | D1      | LED                | SE303A-C   |
|      | D2      | Photo-diode        | SPS-503C-3 |
|      | D3      | LED                | AZC1224    |
|      | D4 - D6 |                    | RLS73      |
|      | Z1      | Resonater (4MHz)   | AZC1846    |
|      | SW1     | Slide SW           | AZS1074    |
|      | SW2     | Slide SW           | AZS1073    |
|      | SW3     | Detector SW        | AZS1123    |

## 6. BLOCK DIAGRAM

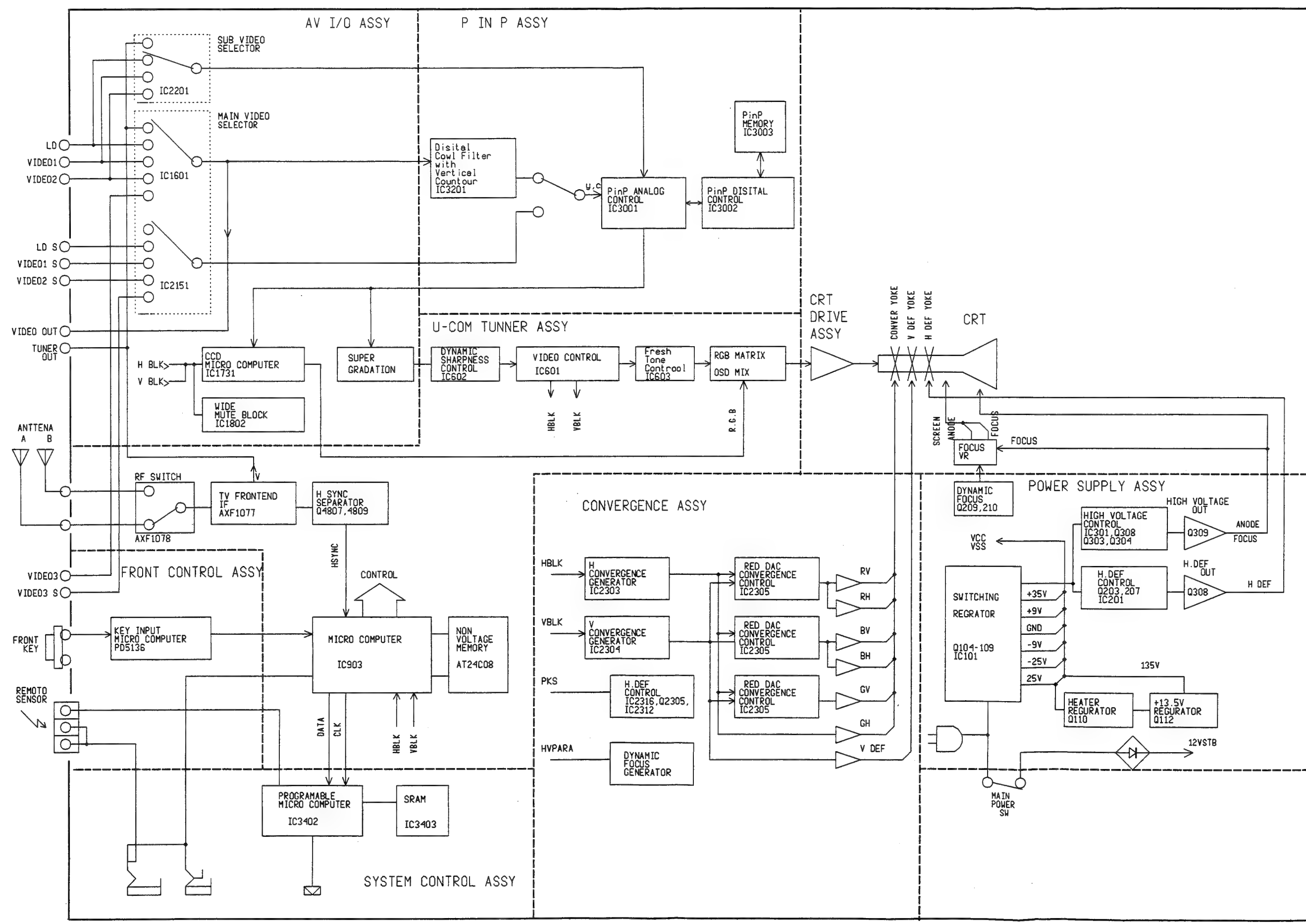
### 6.1 U-COM BLOCK



## 6.2 AUDIO BLOCK

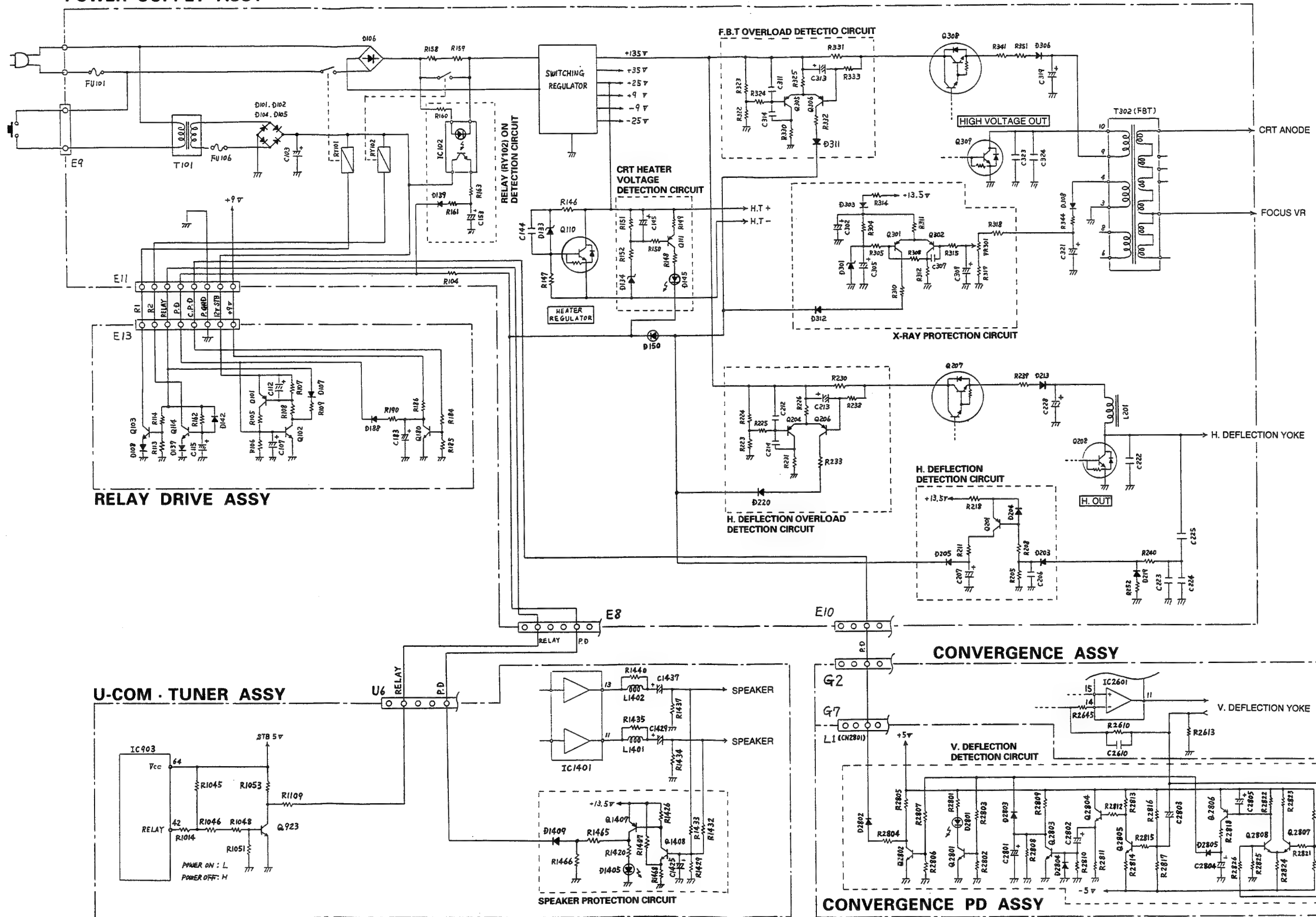


6.3 VIDEO BLOCK DIAGRAM



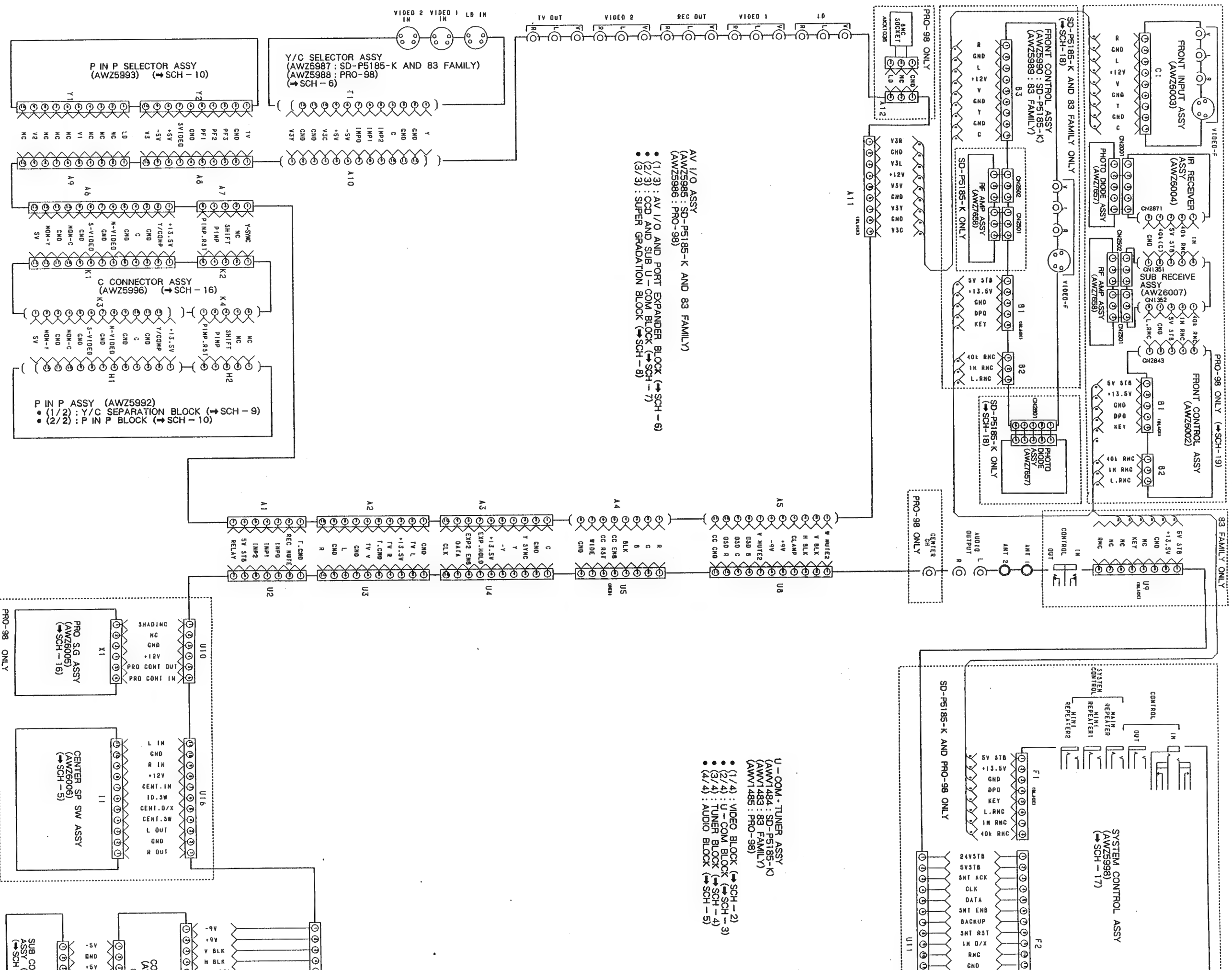


# 6.4 PROTECTION BLOCK DIAGRAM POWER SUPPLY ASSY



## 7. SCHEMATIC AND PCB CONNECTION DIAGRAMS

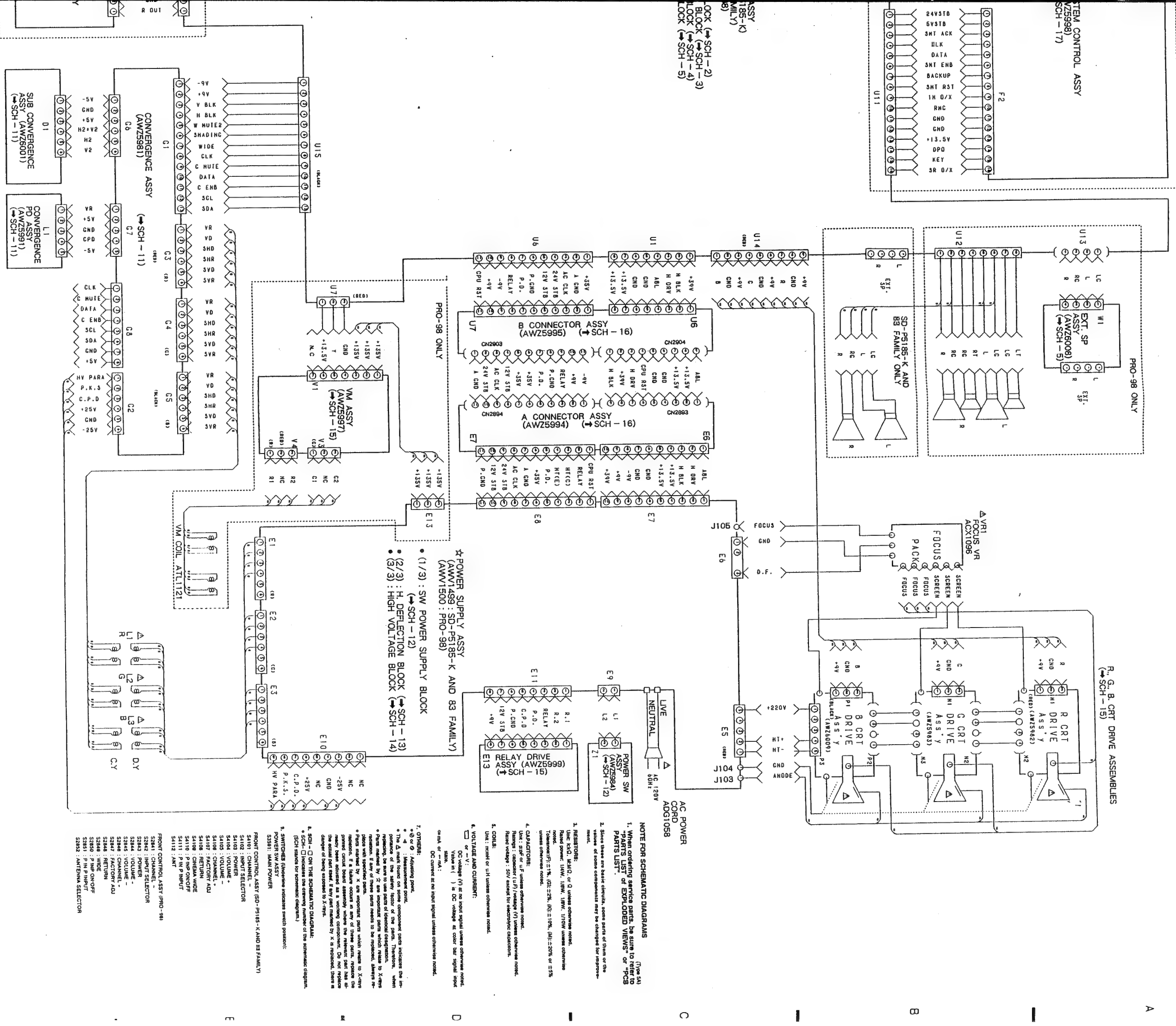
### 7.1 OVERALL WIRING DIAGRAM



SCH-1






OVERALL  
WIRING  
DIAGRAM

SCH - 1

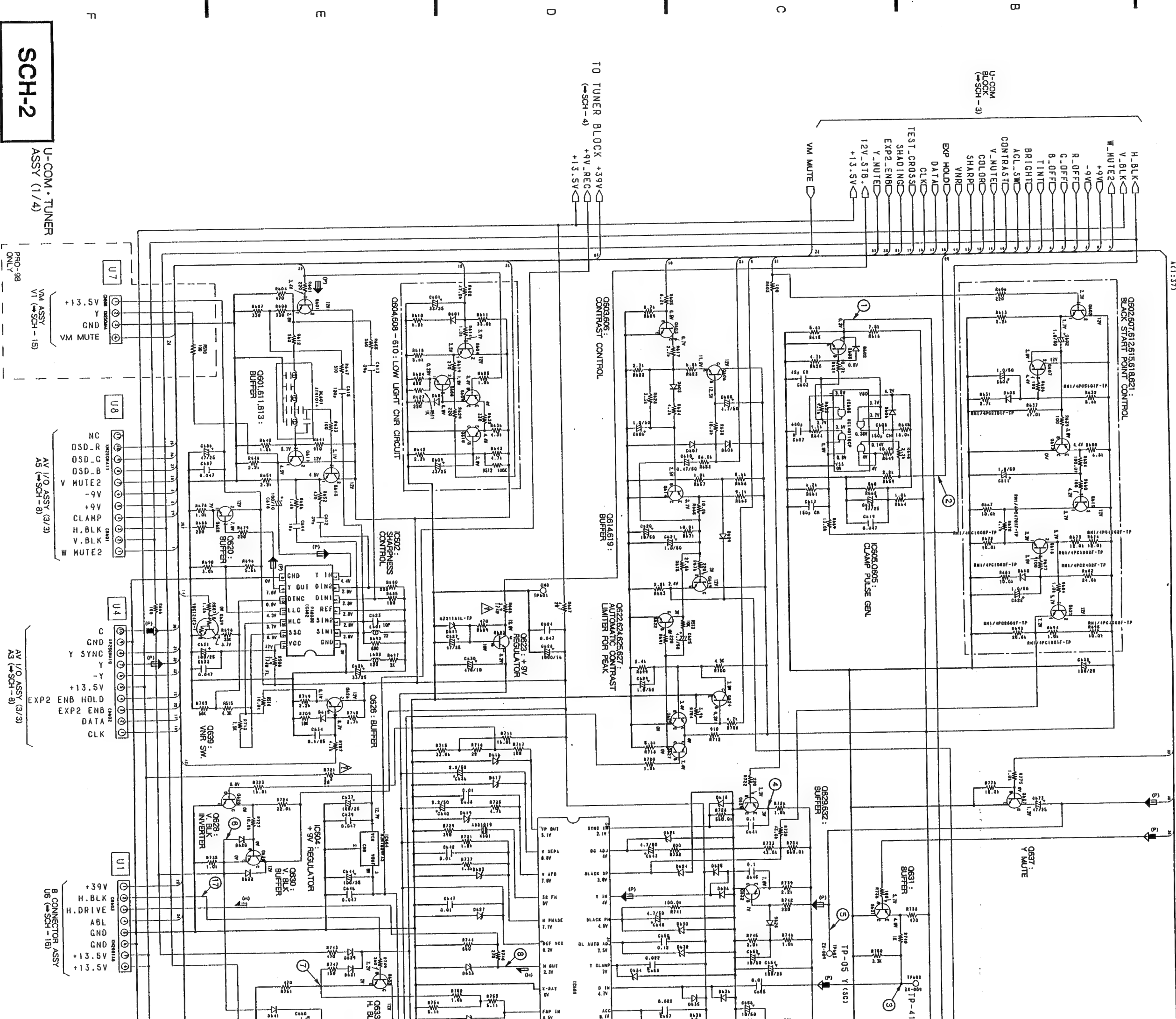


7.2 U-COM • TUNER ASSY (1/4)

Note : Relation between symbols and parts numbers  
are as follows unless otherwise noted.

|  |          |   |            |
|--|----------|---|------------|
|  | 25A9333  |  | HSS-104-02 |
|  | 25C1740S |  | MTZJ15     |
|  | 25K246   |   |            |

U-COM • TUNER ASSY (AWV1484 : SD-P5185-K)  
• VIDEO BLOCK (AWV1483 : 83 FAMILY)  
(AWV1485 : PRO-98)



SCH-2

U-COM • TUNER  
ASSY (1/4)

PRO-98  
ONLY

AV I/O ASSY (3/3)  
A3 (SCH-8)

AV I/O ASSY (3/3)  
A3 (SCH-8)

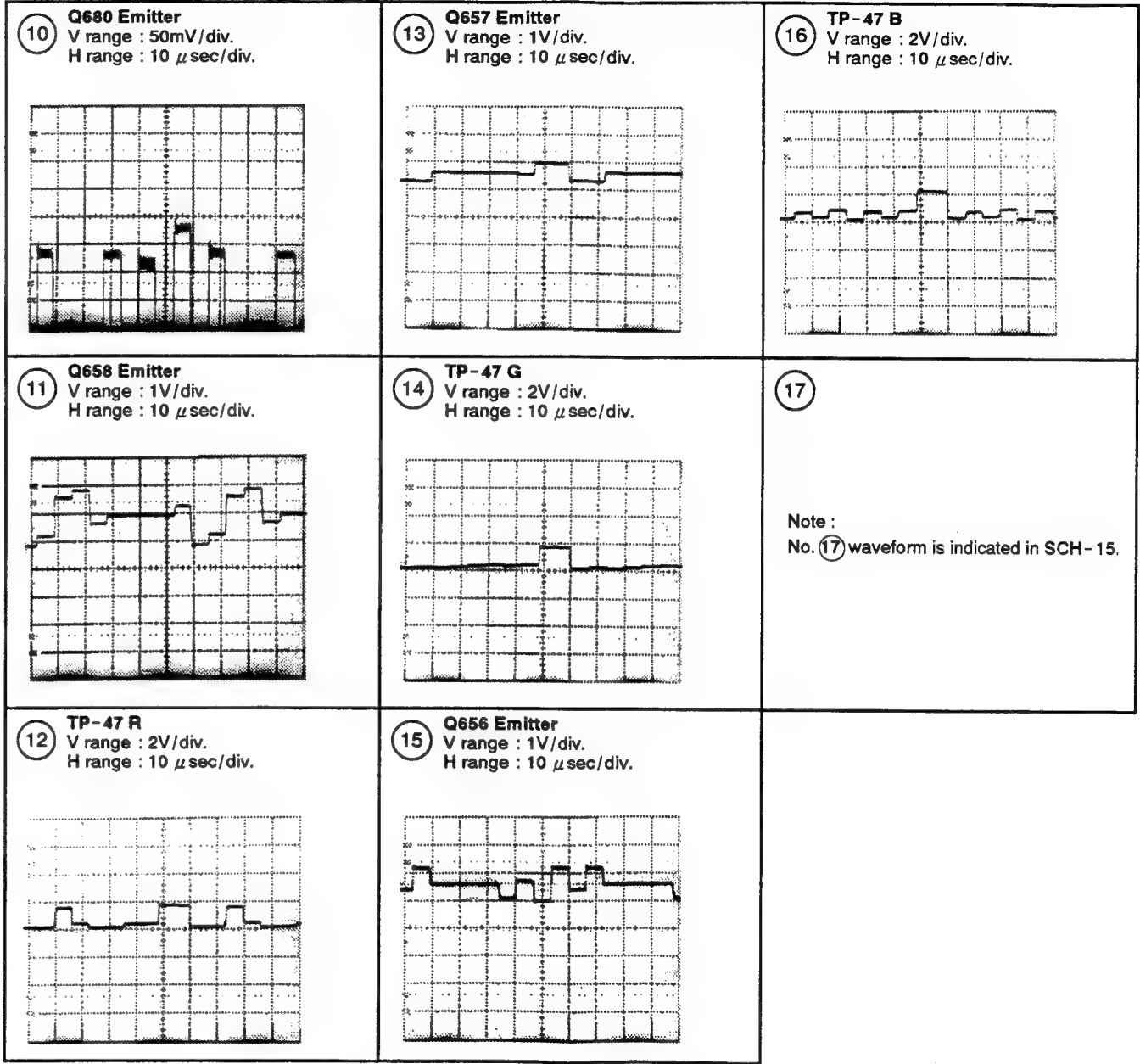
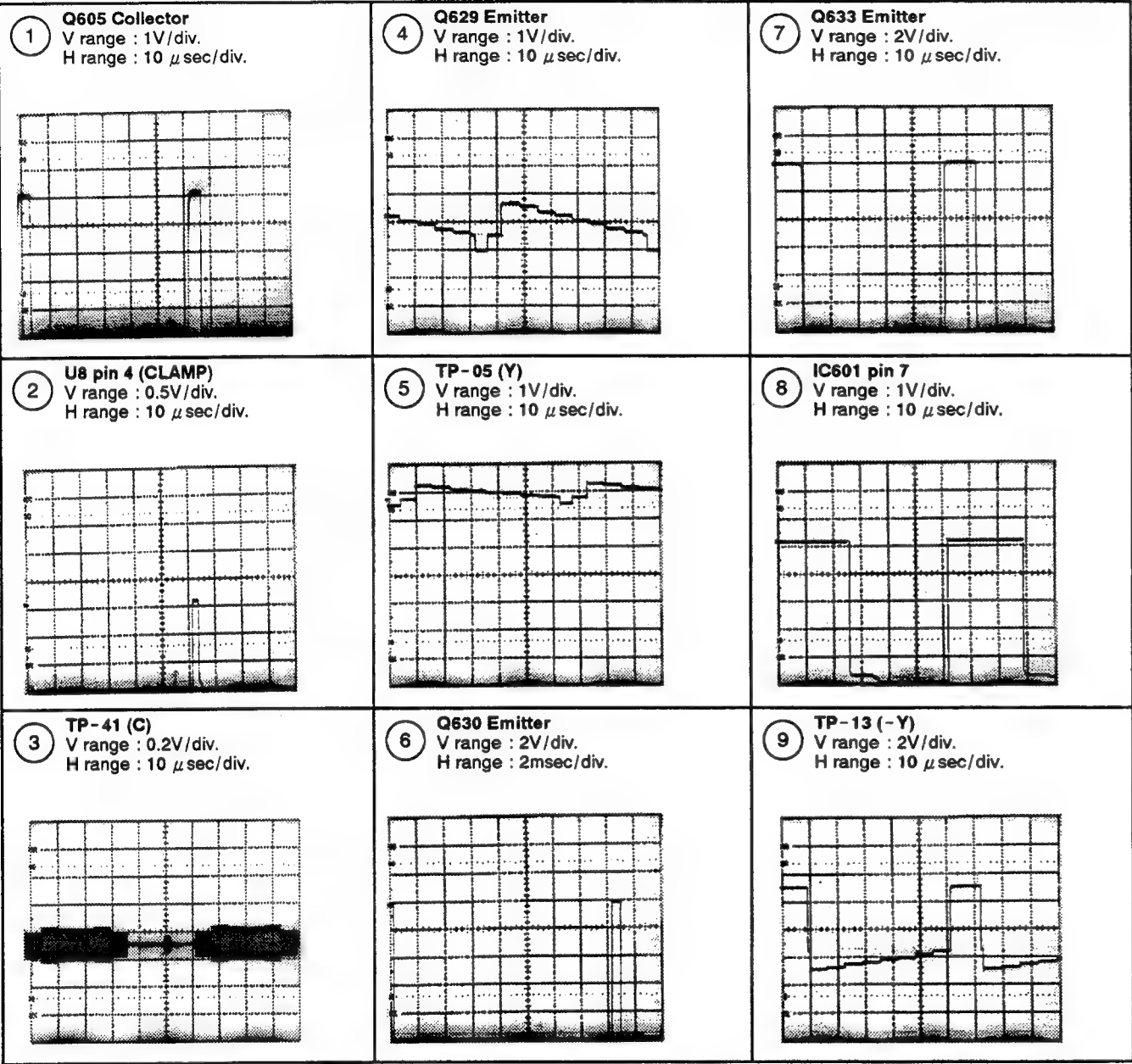
B CONNECTOR ASSY  
U6 (SCH-10)





• Waveformes at U-COM•TUNER ASSY (VIDEO BLOCK)

- Input signal : Color bar
- Picuture quality : standard
- DC range ( Unless otherwise noted. )







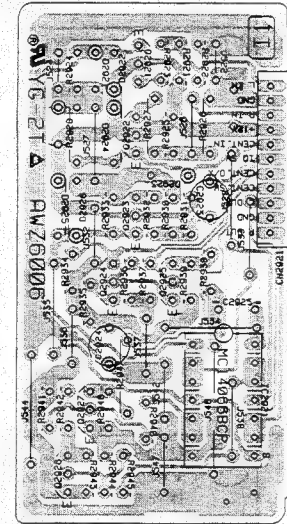
# NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

| Symbol in PCB Diagrams | Symbol in Schematic Diagrams | Part Name             |
|------------------------|------------------------------|-----------------------|
|                        |                              | Transistor            |
|                        |                              | Diode                 |
|                        |                              | Capacitor (Polarized) |

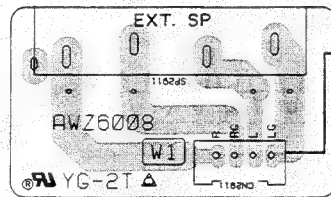
3. The transistor terminal marked with E or shows the emitter.
  4. The diode terminal marked with or shows cathode side.
  5. The capacitor terminal marked with or shows negative terminal.
  6. The parts mounted on these PCB include all necessary parts for several destinations.
- For further information for respective destinations, be sure to check with the schematic diagram.

## CENTER SP SW ASSY



(ANP1823-A)

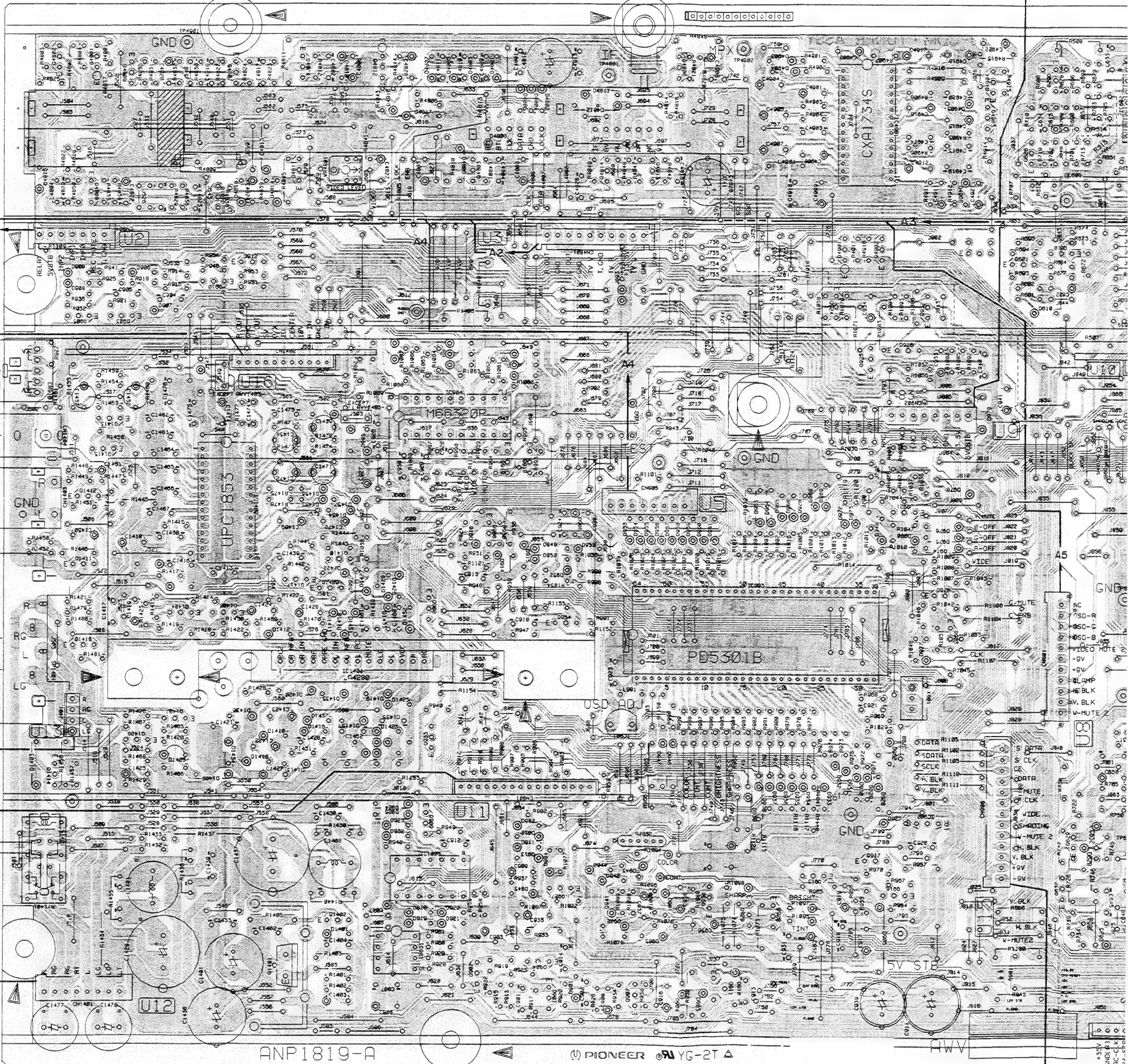
## EXT. SP ASSY



SYSTEM CONTROL ASSY F2

INT. SPEAKERS

## U-COM·TUNER ASSY

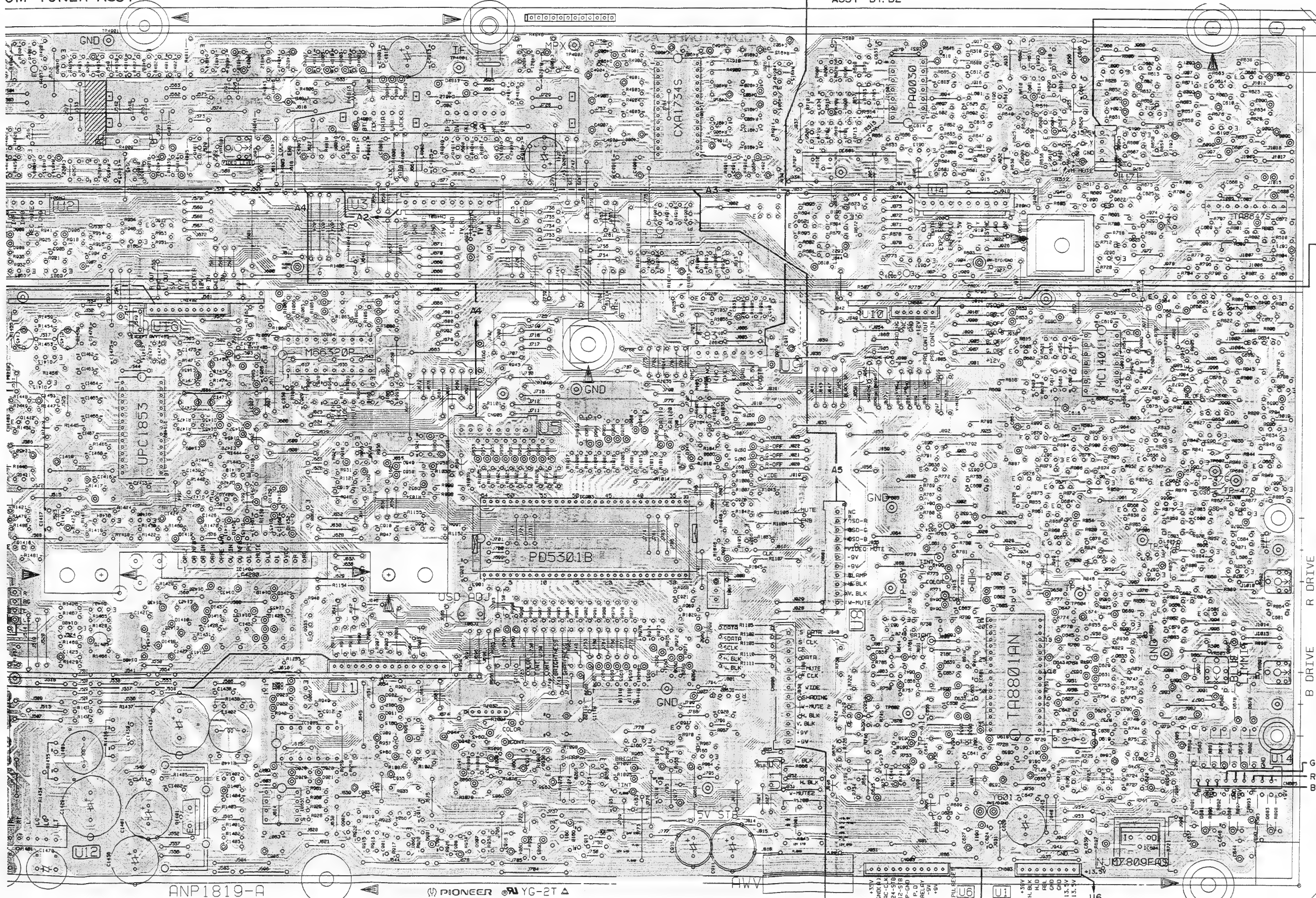




OM · TUNER ASSY

FRONT CONTROL  
ASSY B1, B2

PCB - 1

VM ASSY  
V1

Q620 Q602  
Q604 Q607  
Q611 IC602  
Q612  
Q608 Q619  
Q626 Q615  
Q613 Q609  
Q610

Q601

Q603  
Q622 IC603  
Q618 Q624  
Q621

PRO SG  
ASSY  
X1 Q625  
Q637 Q627  
Q639

Q684 Q683  
Q649

Q647

Q654  
Q605 Q645  
IC605

Q682

Q653

Q680 Q658  
Q679 Q657  
Q652 Q656  
Q677 Q662  
Q678 Q661  
Q636 Q676  
Q635 Q672  
Q671 Q674  
Q666 Q667  
Q664 Q660  
Q675

Q634  
Q663 Q669  
Q651 Q673  
Q670

VR602

Q650 Q668  
Q681  
Q631 Q659

Q655  
IC601

Q629

Q632 Q633

Q628 Q630

Q623  
IC604

R M1  
G N1 R.G.B.  
B P1 CRT DRIVE  
ASSY

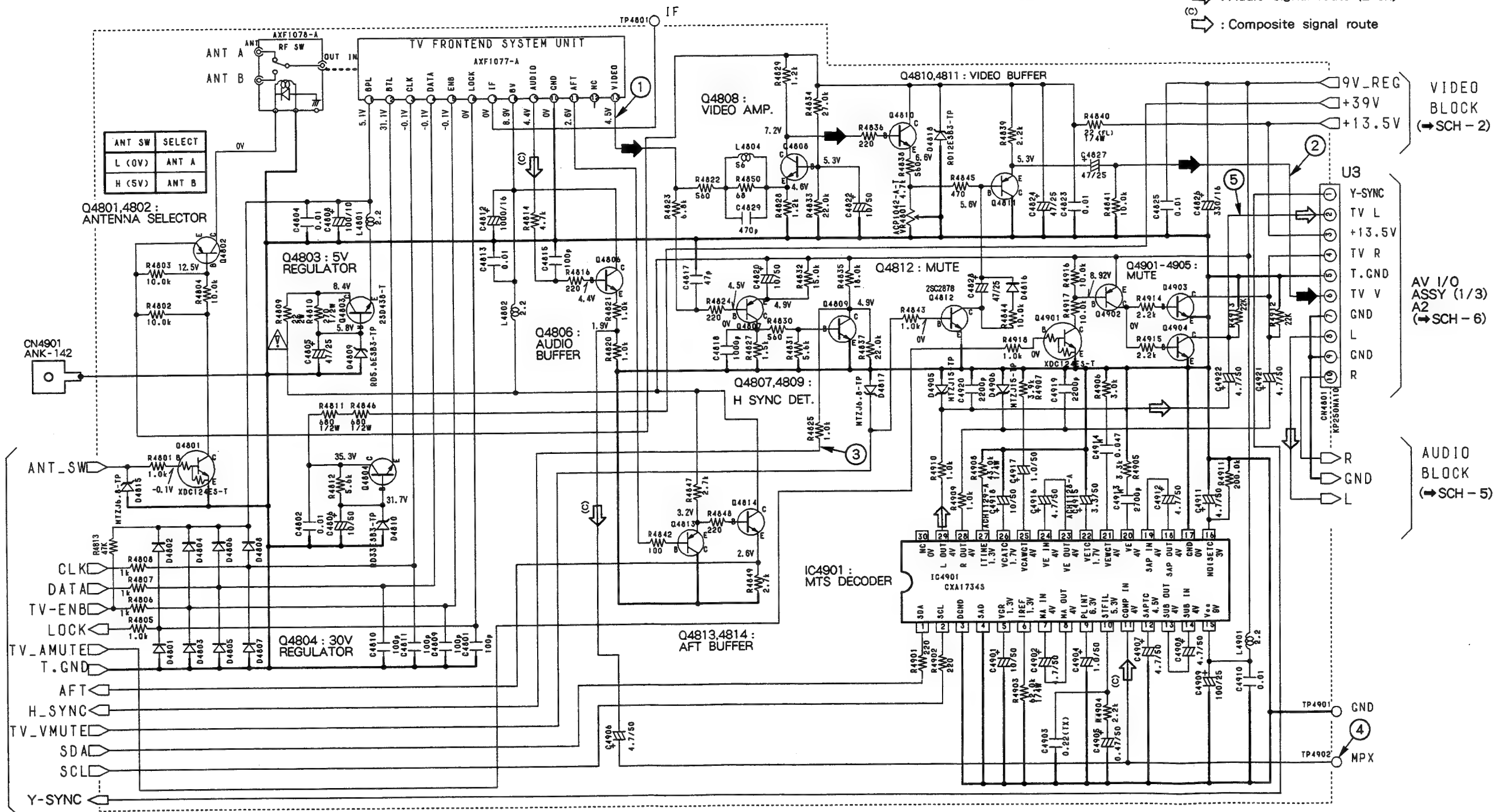
ANP1819-A

PIONEER YG-2T A

CONVERGENCE  
ASSY G1B CONNECTOR  
ASSY U6, U7

## 7.4 U-COM • TUNER ASSY (3/4)

SCH - 4

U-COM • TUNER ASSY (AWV1484 : SD-P5185-K)  
• TUNER BLOCK (AWV1483 : 83 FAMILY)  
(AWV1485 : PRO-98)➡ : Video signal route  
⇨ : Audio signal route (L ch)  
(C) ⇨ : Composite signal route

- Measuring condition of DC voltage
  - ANTENNA SELECT : **ANT A**
  - Video signal : NTSC color bar signal, 87.5% modulation
  - Audio signal : 1kHz sine wave, frequency deviation  $\pm 25$ kHz
- Monaural signal

2SA933S

2SC1740S

HSS-104-02

Note : Relation between symbols and parts numbers  
are as follows unless otherwise noted.

SCH-4

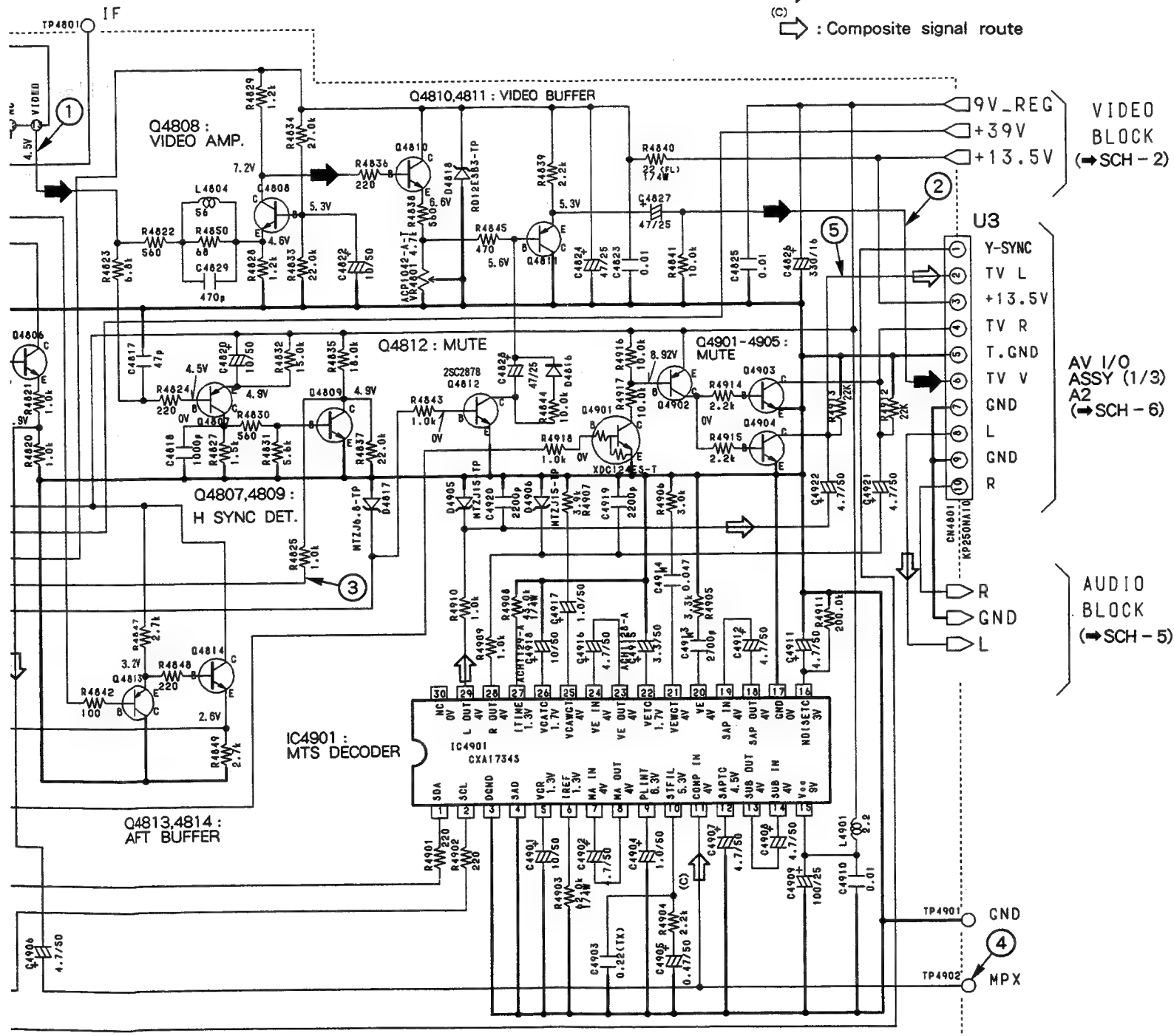
U-COM • TUNER  
ASSY (3/4)



SCH-4

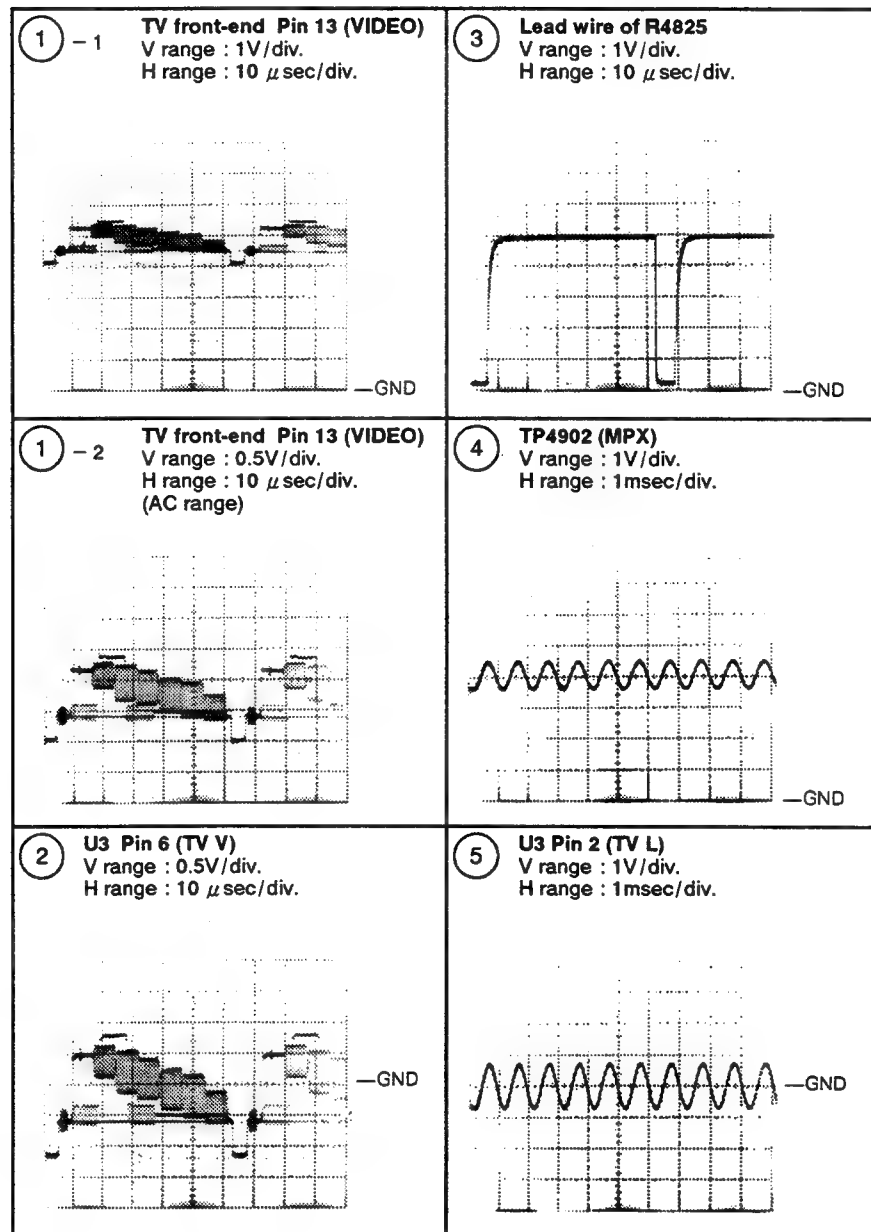
U-COM • TUNER ASSY (AWV1484 : SD-P5185-K)  
 • TUNER BLOCK (AWV1483 : 83 FAMILY)  
 (AWV1485 : PRO-98)

➡ : Video signal route  
 ⇨ : Audio signal route (L ch)  
 ⇩ : Composite signal route



# Waveforms at U-COM • TUNER ASSY (TUNER BLOCK)

- Input signal : Color bar
- Picture quality : standard
- DC range ( Unless otherwise noted. )



2SA933S

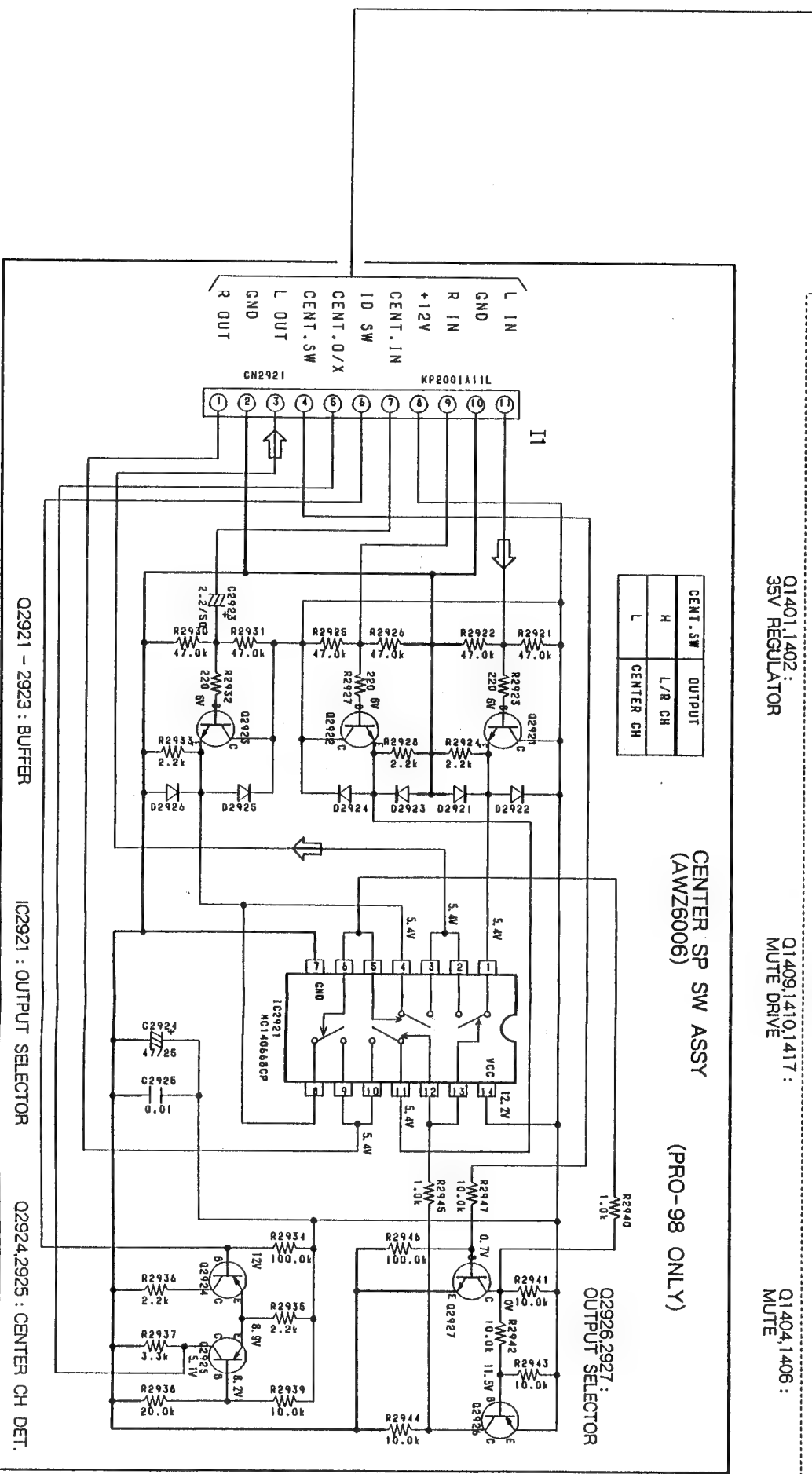
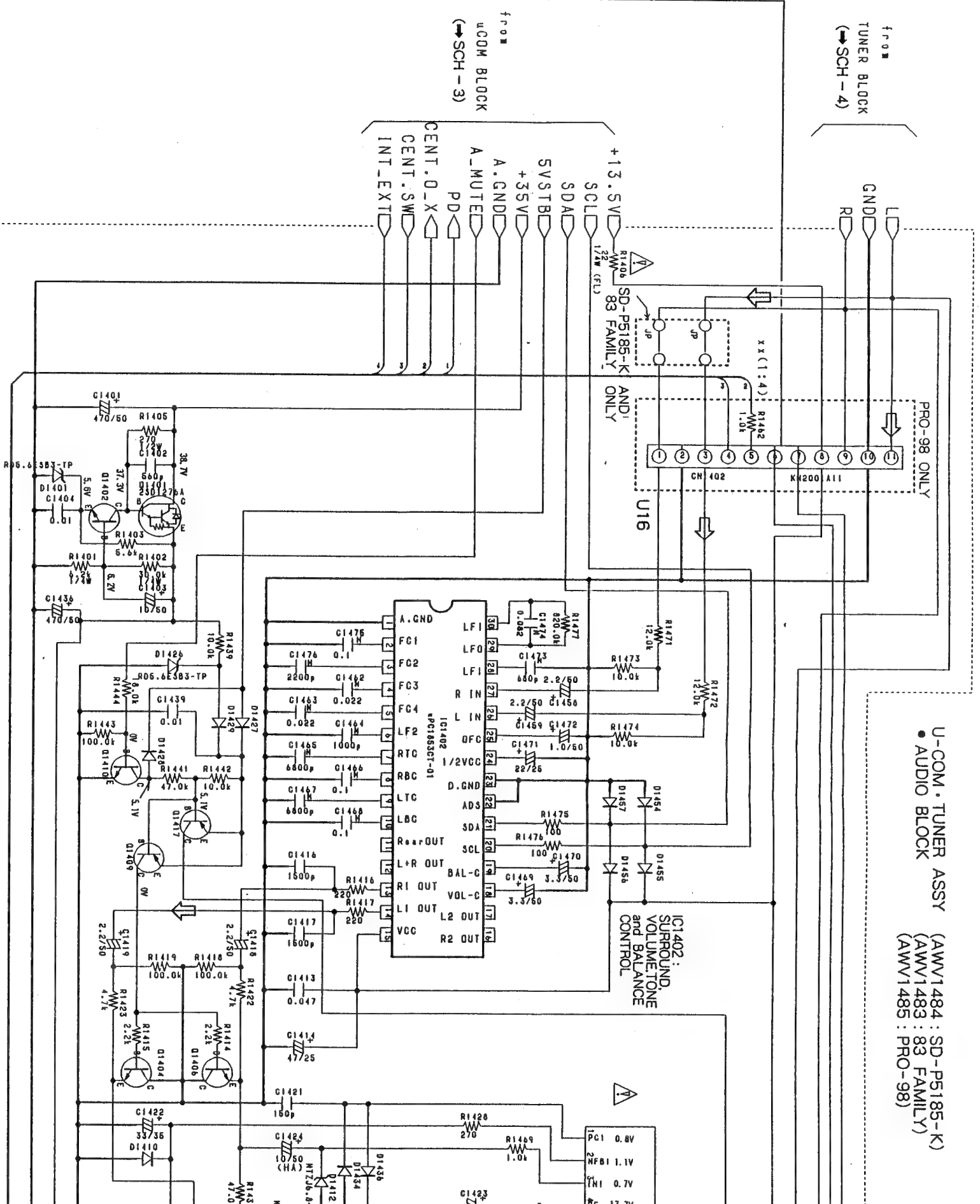
Note : Relation between symbols and parts numbers  
 are as follows unless otherwise noted.

2SC1740S

1S-104-02

U-COM • TUNER  
 ASSY (3/4)

SCH-4

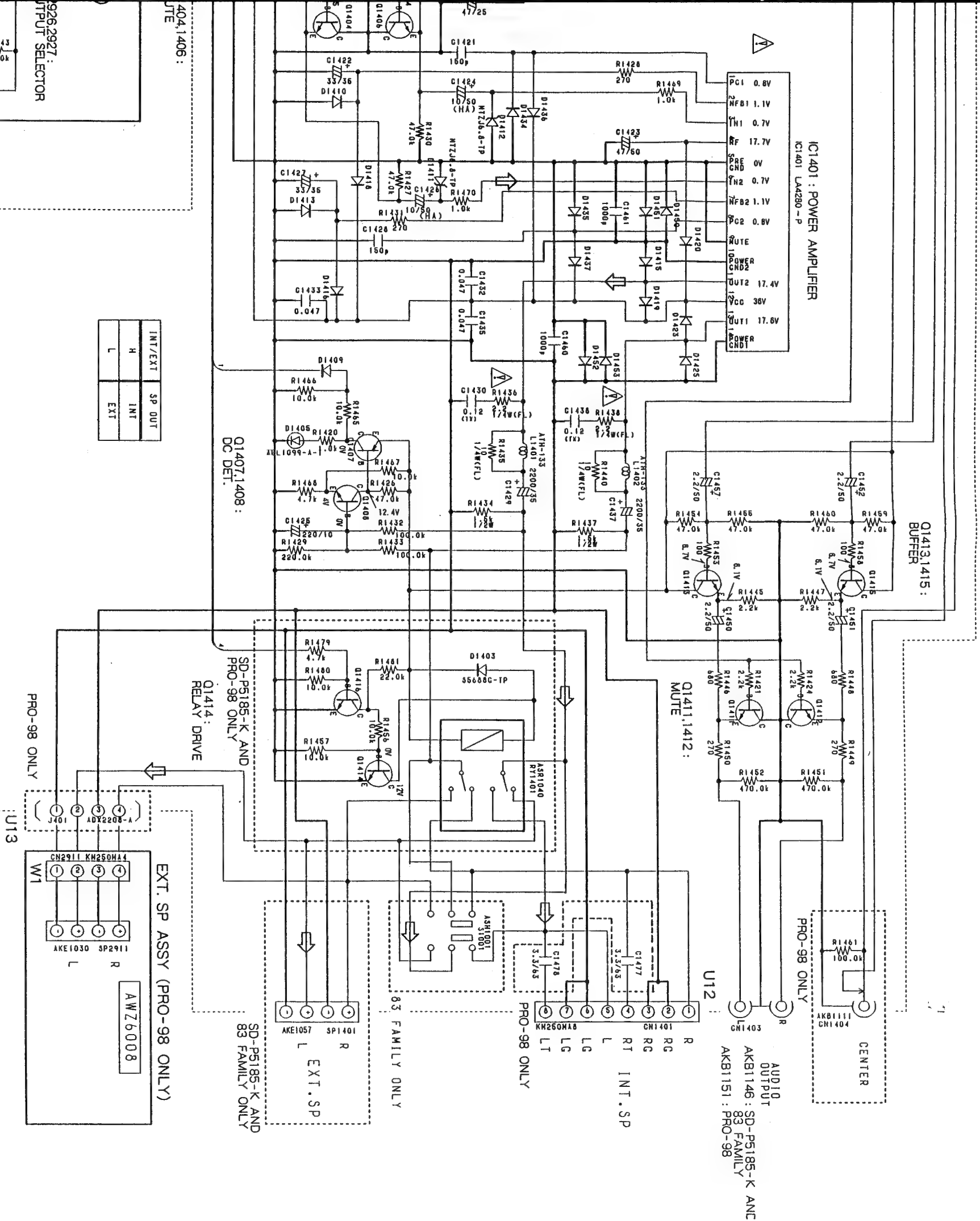


# SCH-5

U-COM • TUNER  
ASSY (4/4),  
CENTER SP SW ASSY,  
EXT. SP ASSY

- A MUTE : OFF
- VOLUME : Min.
- TREBLE, BASS, BALANCE : CENTER (STEP 0)
- FRONT SURROUND : OFF

⇒ : Audio signal route (L ch)



Note: Relation between symbols and parts numbers are as follows unless otherwise noted.

| Pin | Voltage (V) | Pin | Voltage (V) |
|-----|-------------|-----|-------------|
| 1   | 0           | 16  | 6.2         |
| 2   | 6.2         | 17  | 6.2         |
| 3   | 6.2         | 18  | 3.7         |
| 4   | 6.2         | 19  | 4.8         |
| 5   | 6.2         | 20  | —           |
| 6   | 6.2         | 21  | —           |
| 7   | 6.2         | 22  | 0           |
| 8   | 6.2         | 23  | 0           |
| 9   | 6.2         | 24  | 6.2         |
| 10  | 6.2         | 25  | 6.2         |
| 11  | 6.2         | 26  | 6.2         |
| 12  | 6.2         | 27  | 6.2         |
| 13  | 6.2         | 28  | 6.2         |
| 14  | 6.2         | 29  | 6.2         |
| 15  | 12.4        | 30  | 6.2         |

U-COM • TUNER  
ASSY (4/4),  
CENTER SP SW ASSY,  
EXT. SP ASSY



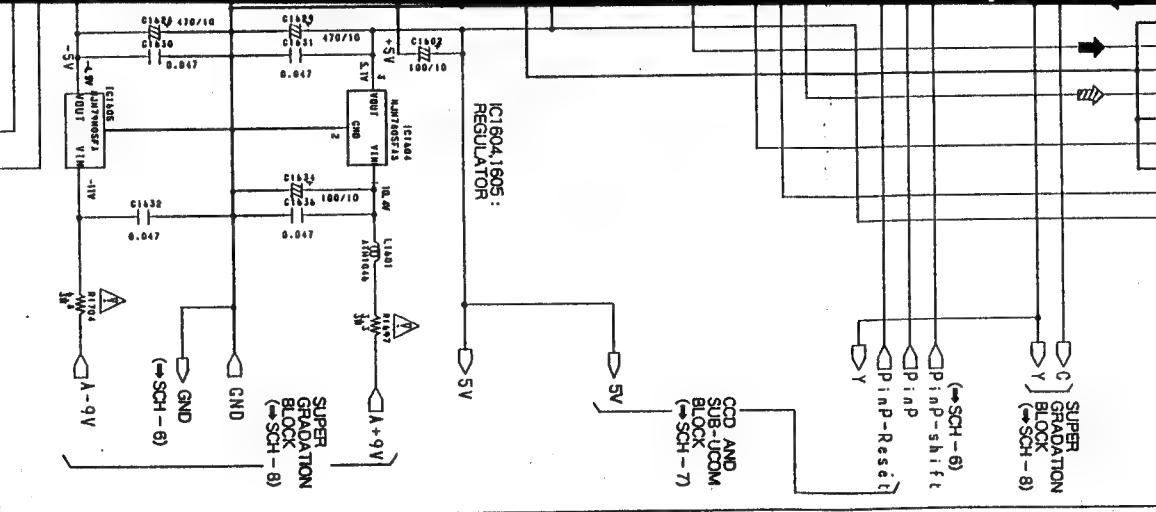


B FAMILY)

- : Video signal route (Main-picture)  
 ⇨ : Audio signal route (L ch)  
 ⇨ : P IN P C-signal route  
 ⇨ : Video signal route (Sub-picture)

C CONNECTOR  
ASSY K1  
(SCH-16)
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15  
 GND M-V-VIDEO GND 3-VIDEO GND 4-VIDEO GND 5+

A 6



Y/C SELECTOR ASSY (AWZ5987 : SD-P5185-K AND 83 FAMILY)

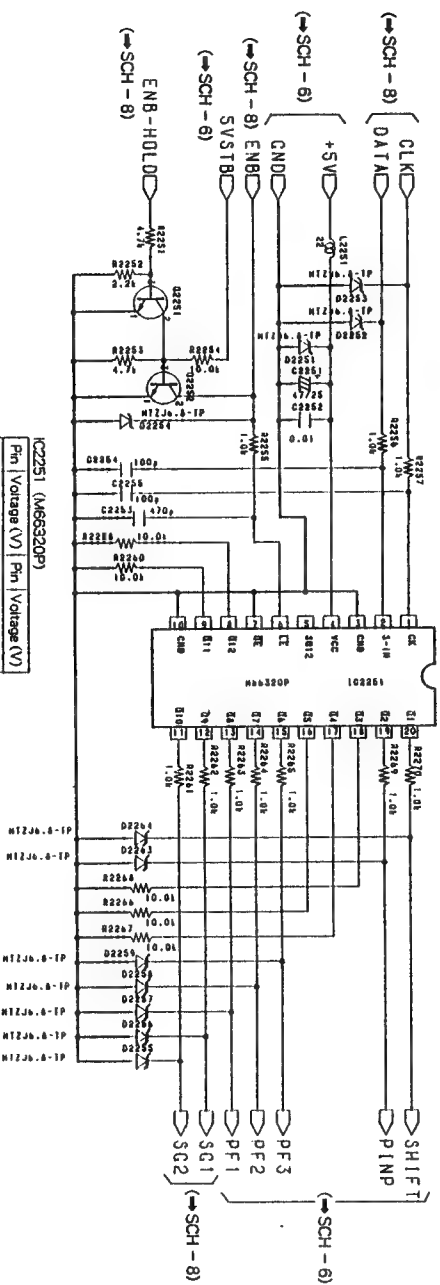
Q2151 - 2156, 2165, 2166 :  
BUFFER

T 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

IC2151 :  
INPUT SELECTOR

| Pin | Voltage (V) | Pin | Voltage (V) |
|-----|-------------|-----|-------------|
| 1   | -0.6        | 9   | 0           |
| 2   | 2.0         | 10  | 0           |
| 3   | -0.8        | 11  | 2.0         |
| 4   | 2.0         | 12  | -0.6        |
| 5   | 2.0         | 13  | -0.8        |
| 6   | 0           | 14  | 2.0         |
| 7   | -4.8        | 15  | 2.0         |
| 8   | 0           | 16  | 4.8         |

IC2251 : PORT EXPANDER



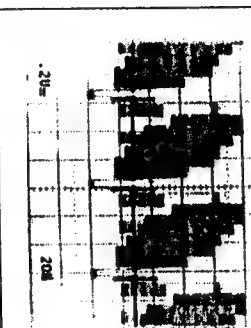
| Pin | Voltage (V) | Pin | Voltage (V) |
|-----|-------------|-----|-------------|
| 1   | 0           | 11  | 0           |
| 2   | 0           | 12  | 0           |
| 3   | 0           | 13  | 0           |
| 4   | 5.1         | 14  | 0           |
| 5   | 5.1         | 15  | 0           |
| 6   | 0.2         | 16  | 0           |
| 7   | 0           | 17  | 0           |
| 8   | 0           | 18  | 0           |
| 9   | 0           | 19  | 0           |
| 10  | 0           | 20  | 0           |

| Pin | Voltage (V) | Pin | Voltage (V) |
|-----|-------------|-----|-------------|
| 1   | 0           | 9   | 0           |
| 2   | 0           | 10  | 0           |
| 3   | 0           | 11  | 0           |
| 4   | 0           | 12  | 0           |
| 5   | 0           | 13  | 0           |
| 6   | 0           | 14  | 0           |
| 7   | -4.9        | 15  | 0           |
| 8   | 0           | 16  | 4.9         |

| Pin | Voltage (V) | Pin | Voltage (V) |
|-----|-------------|-----|-------------|
| 1   | 2.3         | 9   | 0           |
| 2   | 0           | 10  | 0           |
| 3   | -0.9        | 11  | 0           |
| 4   | 0           | 12  | 2.3         |
| 5   | 0           | 13  | -0.6        |
| 6   | 0           | 14  | 2.3         |
| 7   | -4.9        | 15  | 2.3         |
| 8   | 0           | 16  | 4.9         |

- Input signal : Color bar  
 • Picture quality : Standard  
 • DC range

22 LD VIDEO IN  
 V range : 0.2V/div,  
 H range : 20 μsec/div.

AV I/O ASSY (1/3),  
Y/C SELECTOR ASSY

SCH-6



• This diagram is viewed from the mounted parts side.

PCB-2

A

A

B

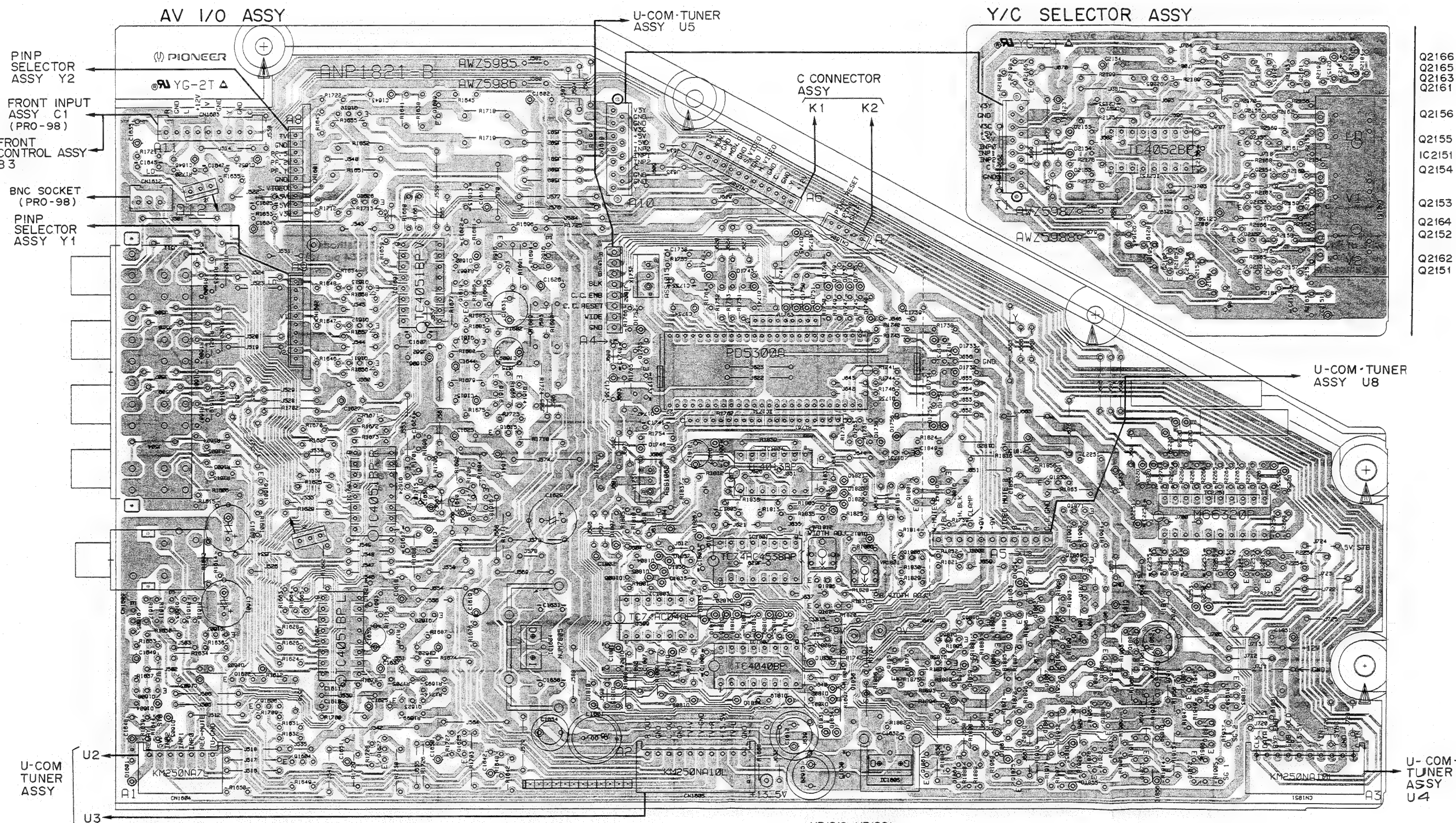
B

C

C

D

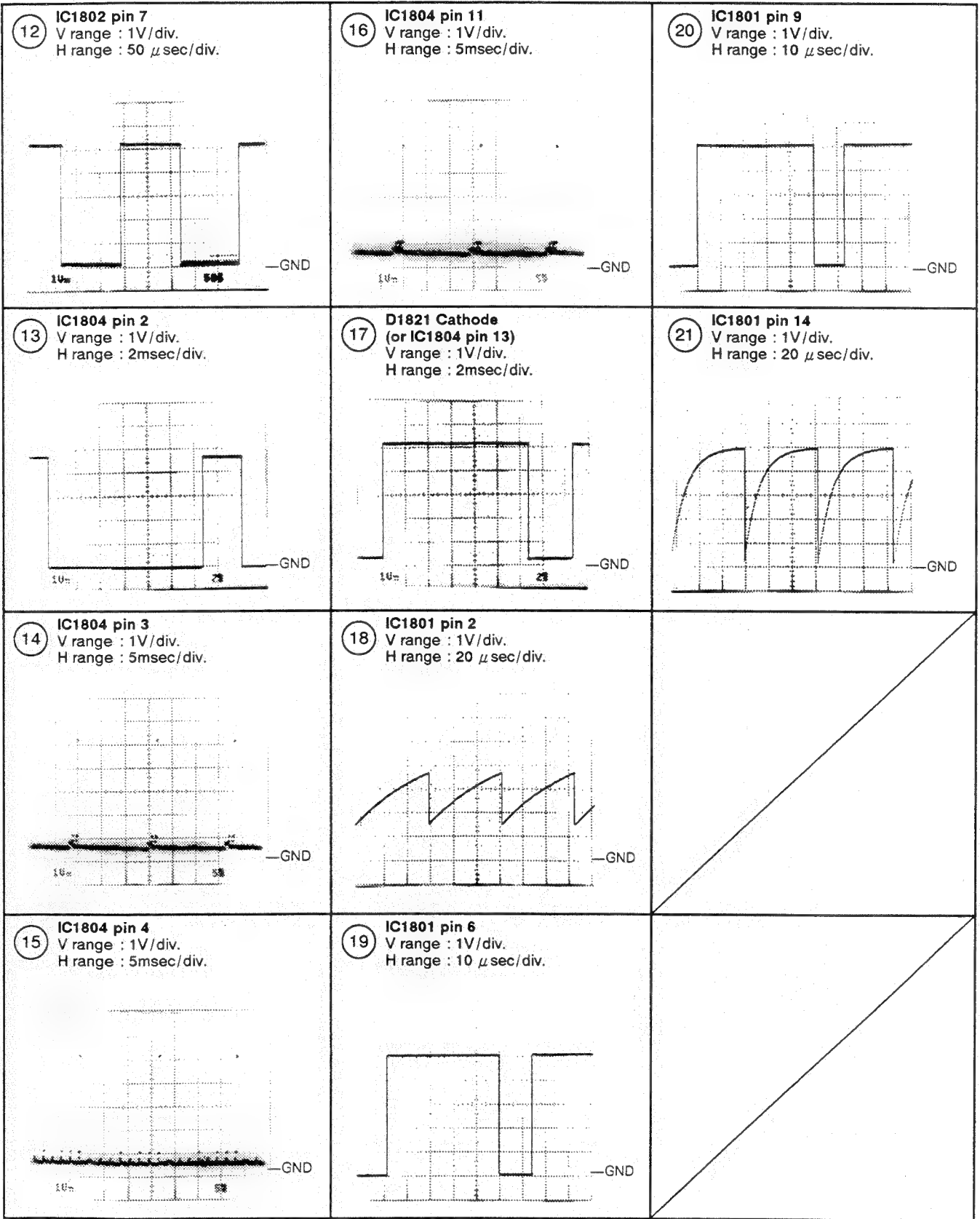
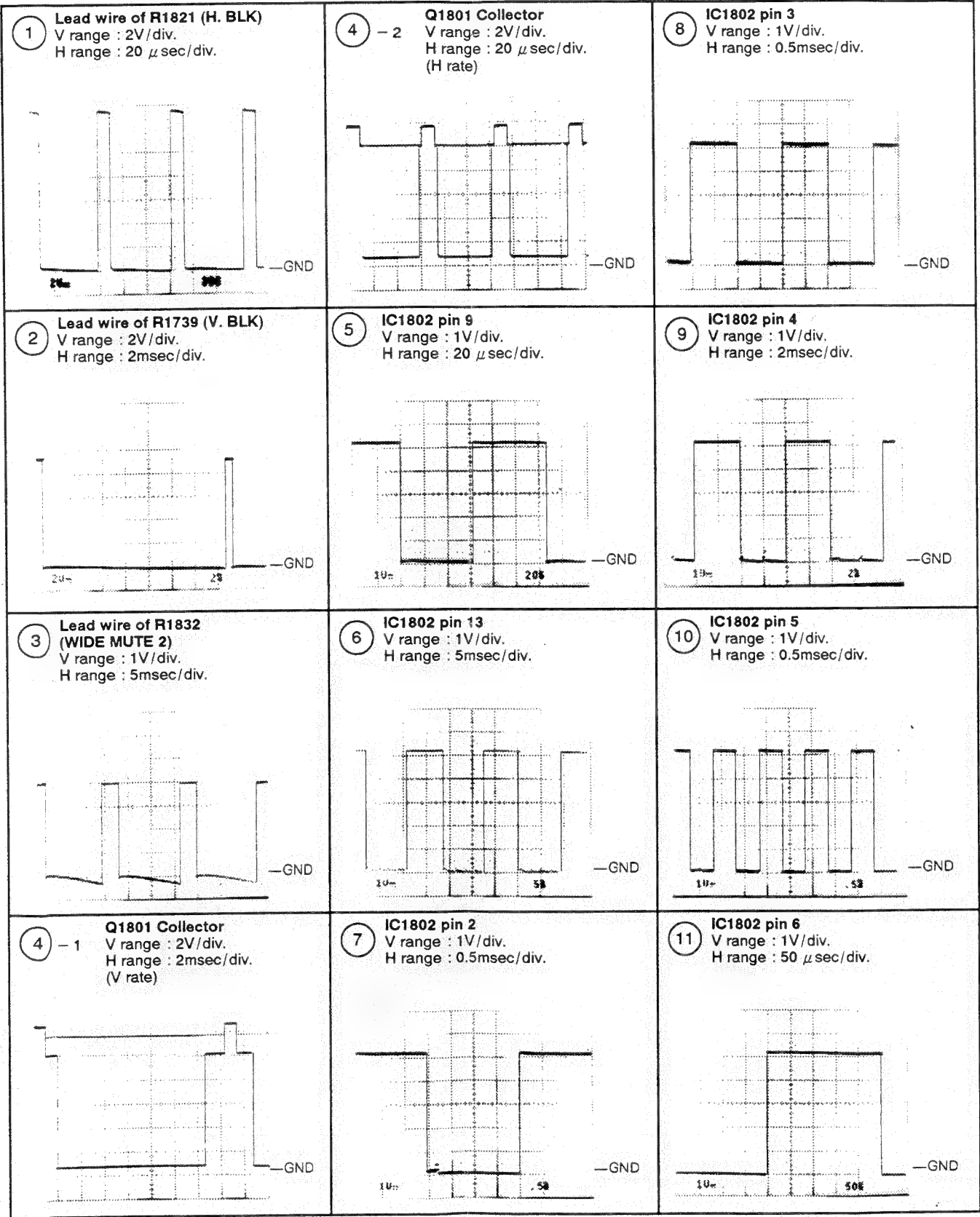
D



Q1605 Q1603 Q1607 Q1602 Q1601 Q1610-Q1613 Q1624 Q1609 Q1622 Q1735  
Q1608 Q1606 Q1604 Q1626 Q1627 Q1623 Q1614-Q1621 IC1602 IC1603 IC1601 Q1625 IC1604  
VR1812 VR1801  
Q1805 Q1856 Q1857 Q1806 Q1864-Q1866 Q1862 Q1867-Q1871 Q1873 Q1883-Q1885  
Q1807 IC1605 Q1858-Q1861 Q1875 Q1881 Q1878 Q1873 IC2251  
Q1863 Q1853 Q1886-Q1888 Q1872 Q2252 Q2251  
IC1735 IC1801-IC1804

Waveformes at AV I/O ASSY (CCD BLOCK)

- Input signal : Color bar
- Picuture quality : standard
- DC range ( Unless otherwise noted. )





# 7.7 AV I/O ASSY (2/3)

## 1.RESISTERS

Indicated in 1/8W; 5%

tolerance unless otherwise notes k:k .M:M .

## 2.CAPACITORS

Indicated in capacity (uF)/voltage unless otherwise noted p:pF .

Indication without voltage is 50V .

2SA933S

2SC1740S

HSS104-02-TP

AV I/O ASSY (AWZ5985:SD-P5185-K AND 83 FAMILY)  
(AWZ5986:PRO-98)  
• CCD AND SUB U-COM BLOCK

IC1731:  
CLOSED CAPTION  
SIGNAL DETECTOR  
AND CHARACTER  
DECODER

Q1731: BUFFER

Q1735:  
RESET

IC1802:  
H PULSE COUNTER  
FOR VIDEO MUTE 2

IC1803:  
INVERTER IC

U-COM • TUNER ASSY  
(2/4) U5  
(SCH-3)

AV I/O ASSY  
(2/3)

SCH-7

TO AV I/O BLOCK  
(SCH-6)

TO SUPER GRADATION BLOCK  
(→SCH - 8)

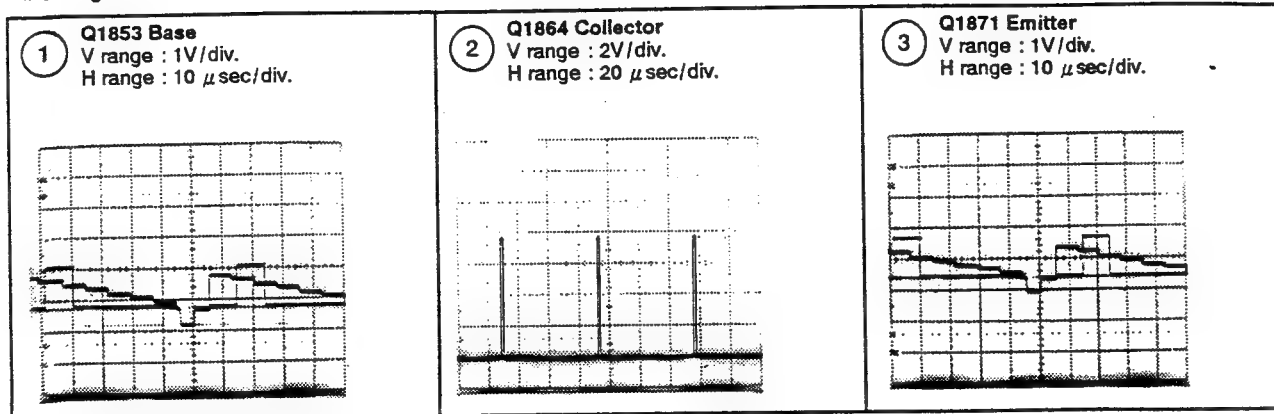
I/O BLOCK  
SCH - 6)

AV I/O ASSY  
(2/3)

SCH-7

● Waveforms at AV I/O ASSY (SUPER GRADATION BLOCK)

- Input signal : Color bar
- Picture quality : Standard
- DC range

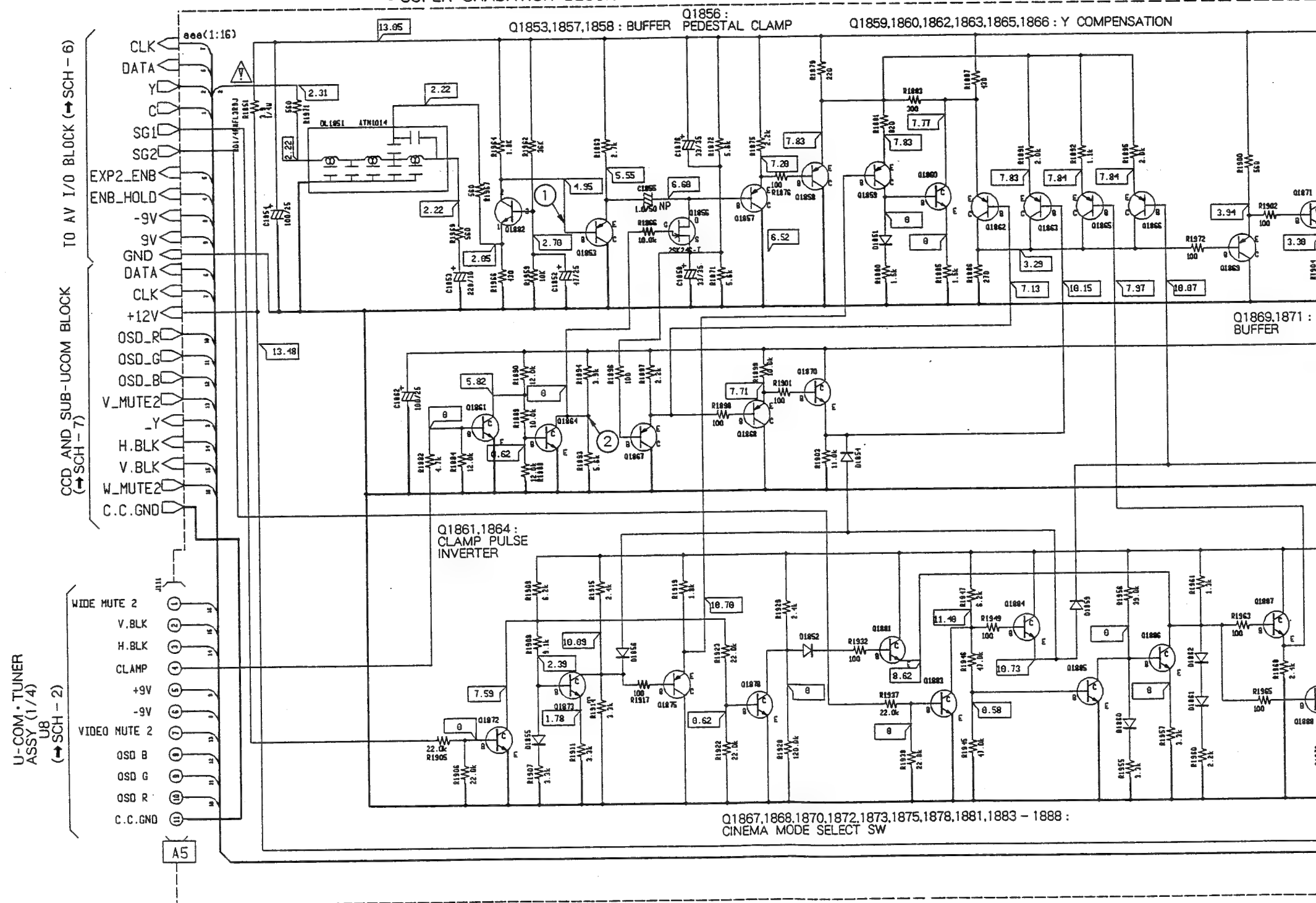


7.8 AV I/O ASSY (3/3)

AV I/O ASSY (AWZ5985 : SD-P5185-K AND 83 FAMILY)

(AWZ5986 : PRO-98)

● SUPER GRADATION BLOCK



Note: Diode HSS104-02 unless otherwise noted.  
Resistor indicated in  $\Omega$ , 1/4W, 1/8W +5% tolerance unless otherwise noted. k:k  $\Omega$ , M:M  $\Omega$ .  
Capacitor indicated in Capacity(  $\mu$ F)/Voltage(V) unless otherwise noted. p:pF.  
Indication without voltage is 50V except Electrolytic capacitor.

L=0V, H=+5V

|     | CINEMA MODE |         |         |
|-----|-------------|---------|---------|
|     | OFF(STD)    | CINEMA1 | CINEMA2 |
| SG1 | L           | L       | H       |
| SG2 | L           | H       | H       |

|  |          |
|--|----------|
|  | 2SA933S  |
|  | 2SC1740S |

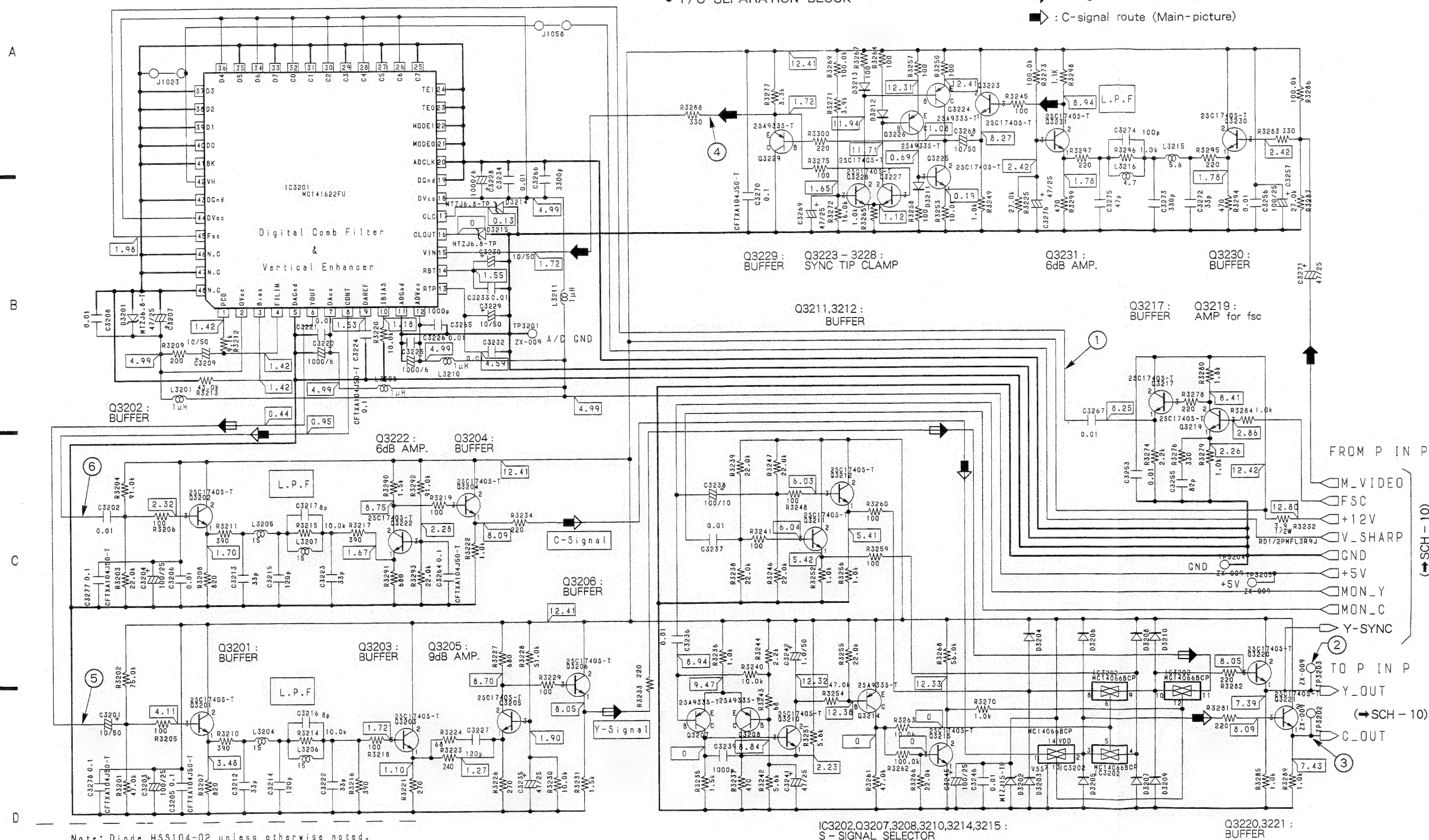




- ➡ : Video signal route (Main-picture)  
◻ : Y-signal route (Main-picture)  
➡ : C-signal route (Main-picture)

## 7.9 P IN P ASSY (1/2)

P IN P ASSY (AWZ5992)  
• Y/C SEPARATION BLOCK

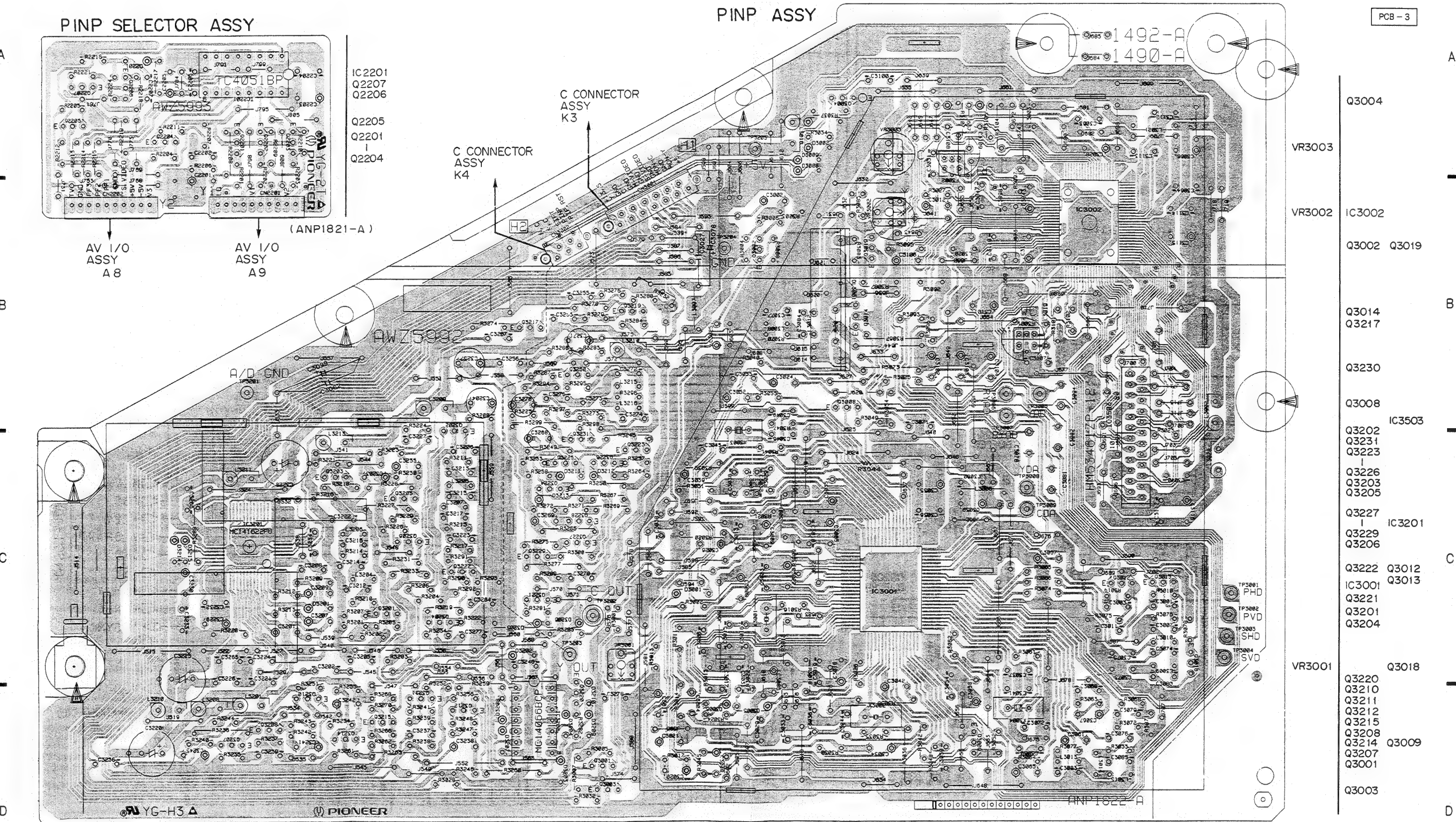


SCH-9

P IN P ASSY  
(1/2)P IN P ASSY  
(1/2)

SCH-9

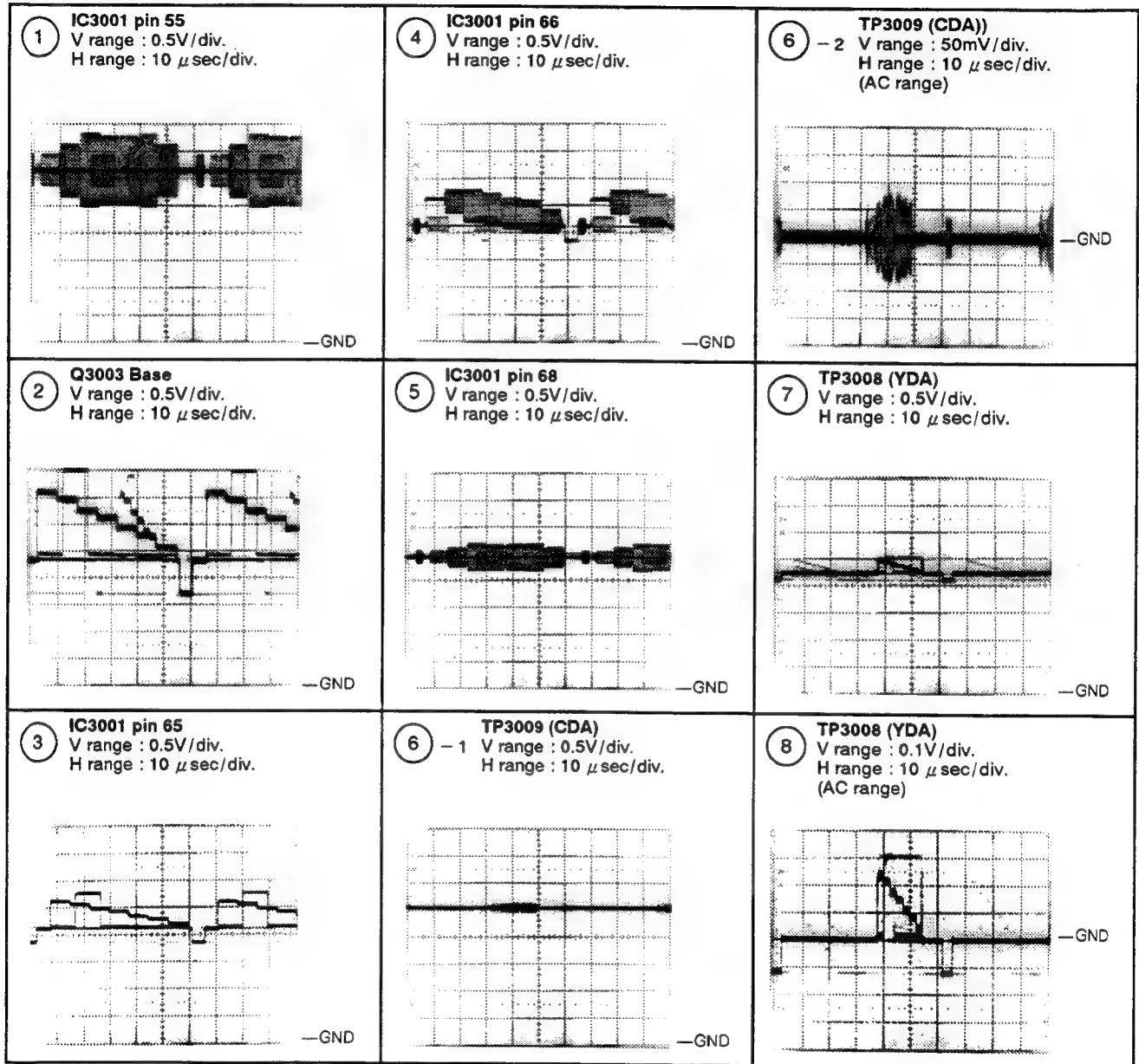


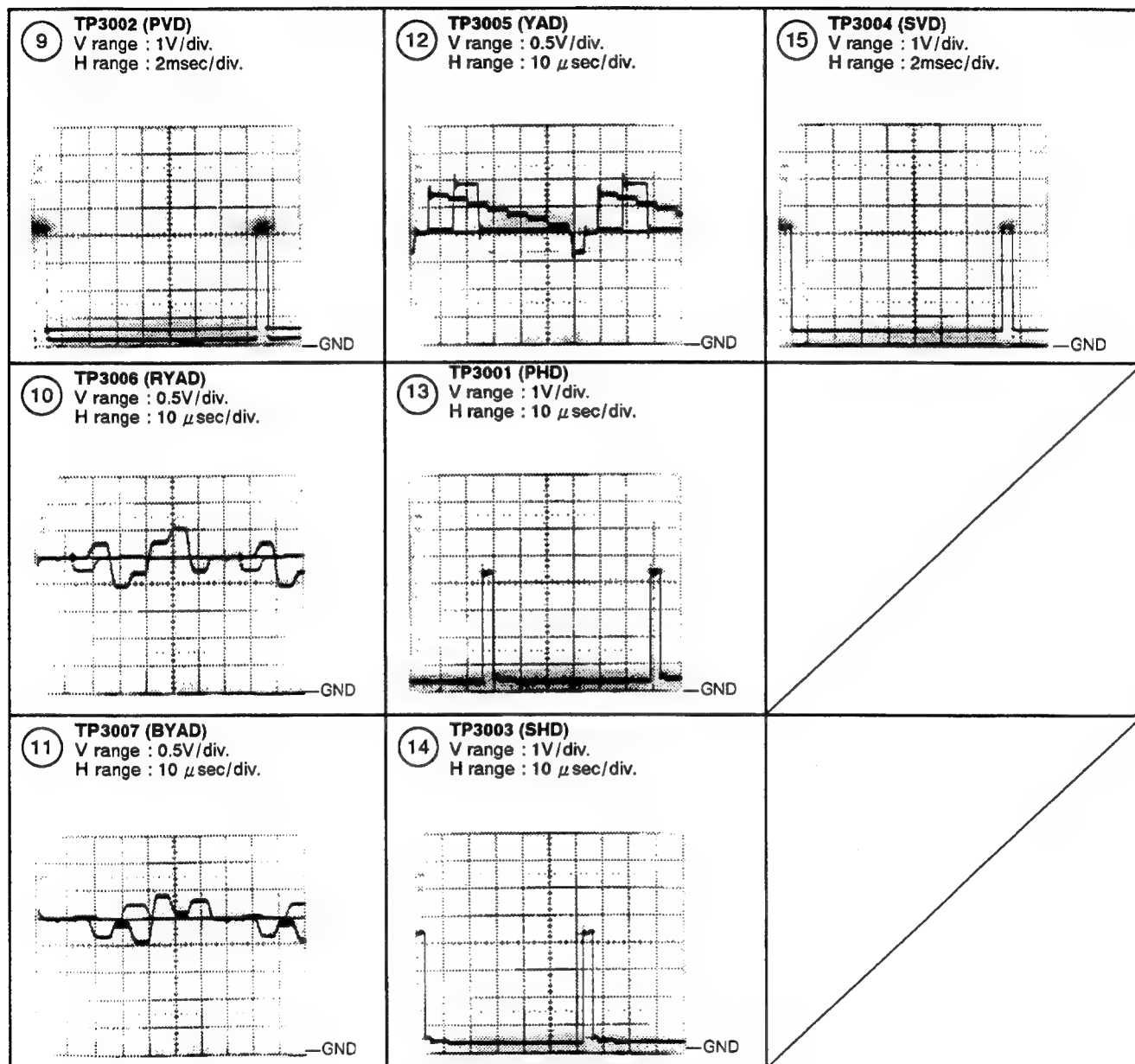


• This diagram is viewed from the mounted parts side.

• Waveforms at PIN P ASSY (PIN P BLOCK)

- Input signal : Color bar
- Picture quality : standard
- DC range ( Unless otherwise noted. )







# 7.10 P IN P ASSY (2/2) AND P IN P SELECTOR ASSY

P IN P ASSY (AWZ59)  
● P IN P BLOCK

P IN P ASSY (2/2),  
P IN P SELECTOR  
ASSY

SCH-10

| IC3001 (HA11569F5) |             |         |             |         |             |         |             |
|--------------------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Pin No.            | Voltage (V) | Pin No. | Voltage (V) | Pin No. | Voltage (V) | Pin No. | Voltage (V) |
| 1                  | 4.96        | 21      | 3.68        | 41      | 4.97        | 61      | 0           |
| 2                  | 2.61        | 22      | 2.52        | 42      | 0           | 62      | 4.98        |
| 3                  | 2.3         | 23      | 2.52        | 43      | 0.84        | 63      | 4.98        |
| 4                  | 2.32        | 24      | 0.43        | 44      | 0.49        | 64      | 12.51       |
| 5                  | 0           | 25      | 2.21        | 45      | 1.79        | 65      | 2.36        |
| 6                  | 0           | 26      | 2.35        | 46      | 2.78        | 66      | 2.35        |
| 7                  | 3.05        | 27      | 0.48        | 47      | 2.1         | 67      | 0           |
| 8                  | 1.96        | 28      | 0.65        | 48      | 2.31        | 68      | 2.48        |
| 9                  | 1.95        | 29      | 0           | 49      | 1.89        | 69      | 1.78        |
| 10                 | 2.67        | 30      | 0.54        | 50      | 2.19        | 70      | 2.81        |
| 11                 | 1.66        | 31      | 1.79        | 51      | 2.23        | 71      | 2.87        |
| 12                 | 4.25        | 32      | 1.89        | 52      | 3.72        | 72      | 2.12        |
| 13                 | 0(0.97)     | 33      | 2.3         | 53      | 2.13        | 73      | 3.78        |
| 14                 | 2.14        | 34      | 2.77        | 54      | 2.11        | 74      | 2.56        |
| 15                 | 2.4         | 35      | 2.11        | 55      | 3.15        | 75      | 2.55        |
| 16                 | 2.83        | 36      | 0           | 56      | 3.32        | 76      | 1.88        |
| 17                 | 2.86        | 37      | 2.21        | 57      | 2.84        | 77      | 3.48        |
| 18                 | 2.74        | 38      | 2.34        | 58      | 3.32        | 78      | 2.81        |
| 19                 | 1.62        | 39      | 0.65        | 59      | 0           | 79      | 4.96        |
| 20                 | 2.1         | 40      | 0           | 60      | 0           | 80      | 0           |

Note: DC voltage (V) at color bar signal input

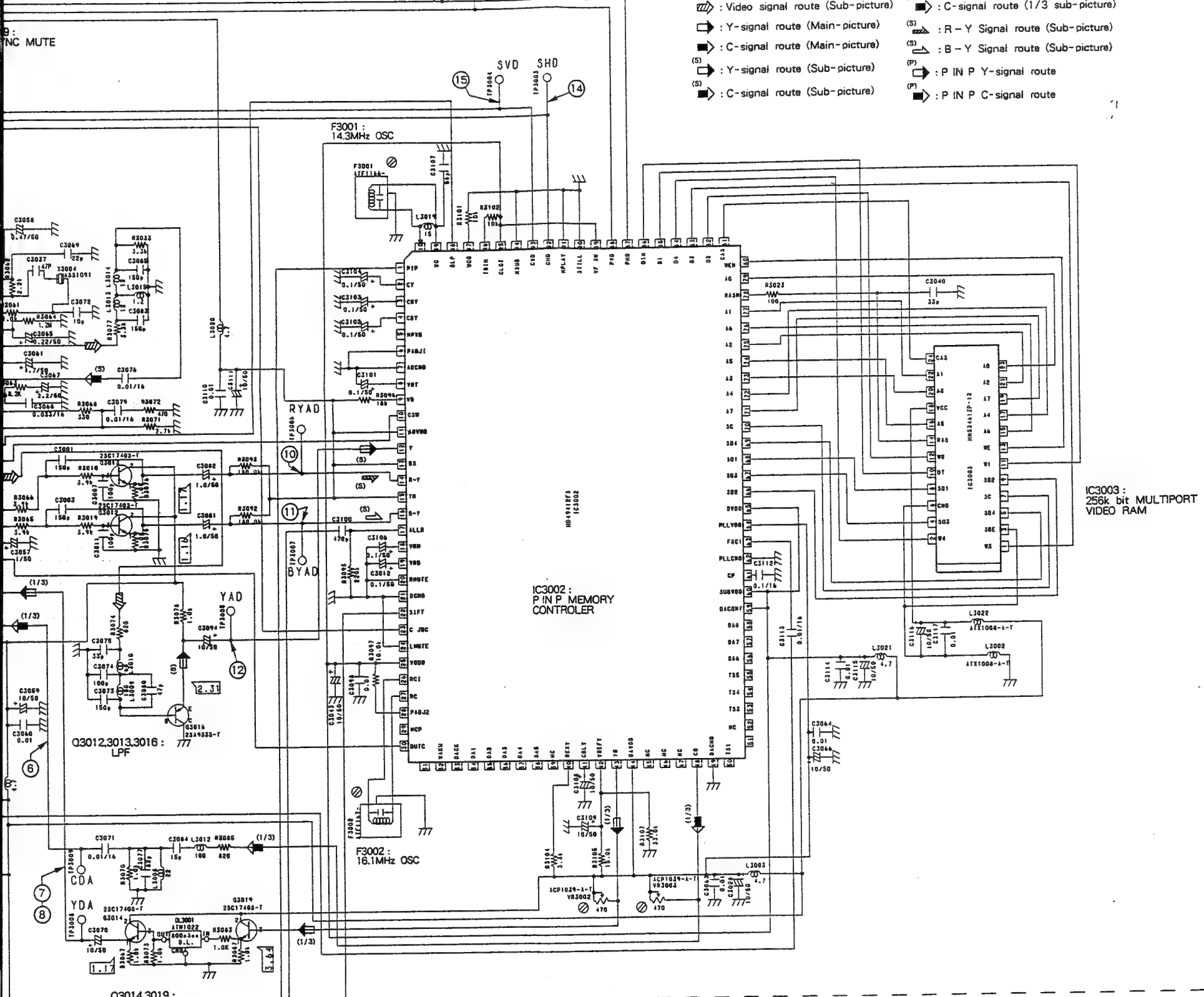
| IC3002 (HD49412F5) |             |         |             |         |             |         |             |
|--------------------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Pin No.            | Voltage (V) | Pin No. | Voltage (V) | Pin No. | Voltage (V) | Pin No. | Voltage (V) |
| 1                  | 0 (5.03)    | 21      | 0           | 41      | 2.82        | 61      | 2.32        |
| 2                  | 2.04        | 22      | 0           | 42      | 3.44        | 62      | 0           |
| 3                  | 2.2         | 23      | 0           | 43      | 5.0 (4.41)  | 63      | 2.32        |
| 4                  | 2.18        | 24      | 0.95        | 44      | 5.01        | 64      | 5.01        |
| 5                  | 0           | 25      | 4.92        | 45      | —           | 65      | 5.02        |
| 6                  | 0.59        | 26      | 2.56        | 46      | —           | 66      | —           |
| 7                  | 0.86        | 27      | 2.36        | 47      | —           | 67      | 0.84        |
| 8                  | 5.02 (2.97) | 28      | 4.92        | 48      | 5.02 (2.12) | 68      | —           |
| 9                  | 4.98 (1.27) | 29      | 0           | 49      | 0           | 69      | 4.99        |
| 10                 | 4.21        | 30      | 0.02        | 50      | —           | 70      | 9.0         |
| 11                 | 4.95        | 31      | —           | 51      | —           | 71      | —           |
| 12                 | 5.12 (2.38) | 32      | —           | 52      | —           | 72      | —           |
| 13                 | 4.95        | 33      | —           | 53      | —           | 73      | —           |
| 14                 | 4.89 (2.11) | 34      | —           | 54      | —           | 74      | —           |
| 15                 | 4.95        | 35      | —           | 55      | —           | 75      | —           |
| 16                 | 4.9 (2.51)  | 36      | —           | 56      | —           | 76      | —           |
| 17                 | 0.51        | 37      | —           | 57      | —           | 77      | —           |
| 18                 | 5.12 (2.13) | 38      | —           | 58      | —           | 78      | —           |
| 19                 | 5.12 (2.02) | 39      | —           | 59      | 4.99        | 79      | —           |
| 20                 | 0           | 40      | 3.4         | 60      | 4.99        | 80      | —           |

Note: DC voltage (V) at color bar signal input and PINP OFF  
Value in ( ) DC voltage at PINP ON

Note: Diode HSS104-02 unless otherwise noted.

P IN P ASSY (AWZ5992)  
P IN P BLOCK

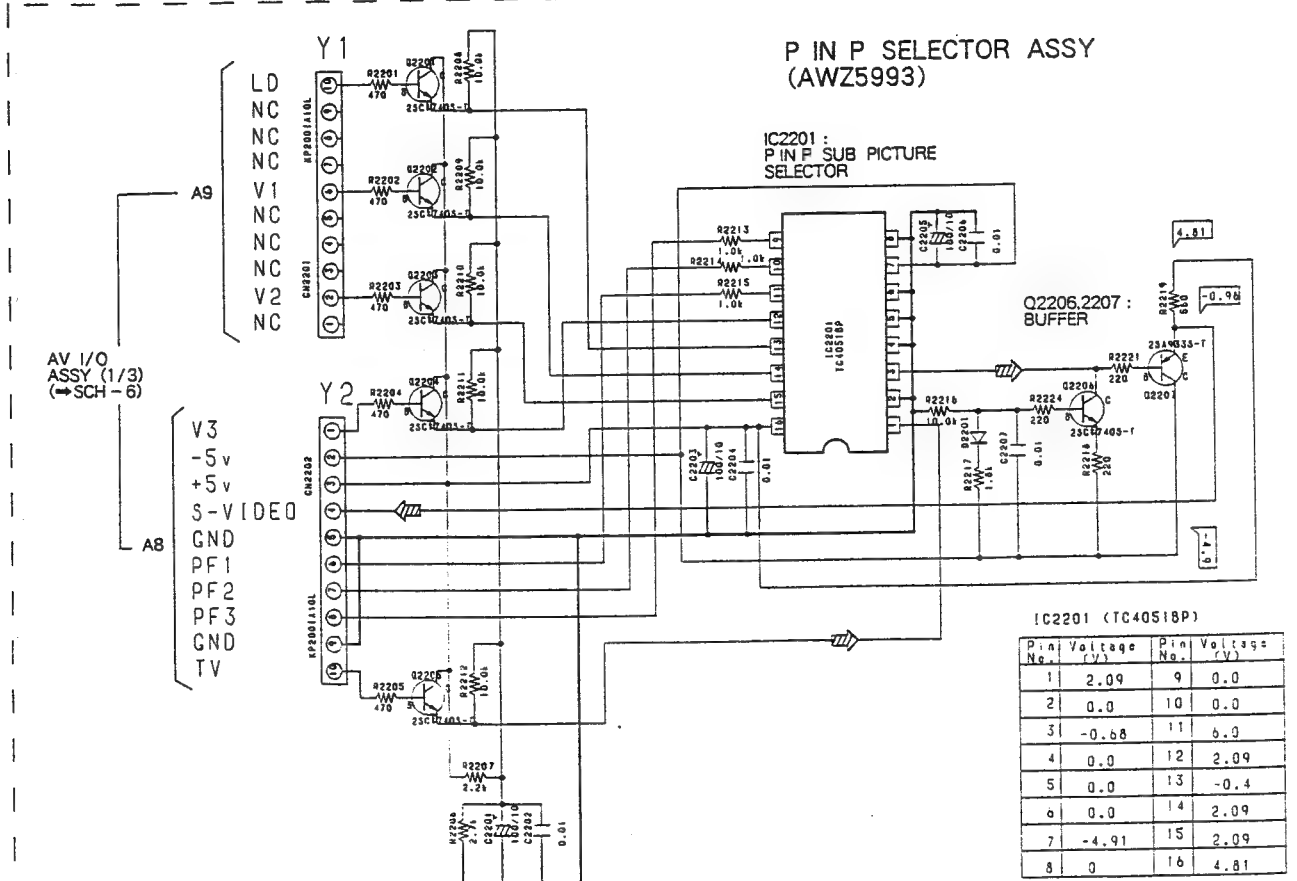
9: NC MUTE



- ➡ : Video signal route (Main-picture)
- ➡ : Video signal route (Sub-picture)
- ➡ : Y-signal route (Main-picture)
- ➡ : C-signal route (Main-picture)
- (S) ➡ : Y-signal route (Sub-picture)
- (S) ➡ : C-signal route (Sub-picture)
- (1/3) ➡ : Y-signal route (1/3 sub-picture)
- (1/3) ➡ : C-signal route (1/3 sub-picture)
- (S) ➡ : R-Y Signal route (Sub-picture)
- (S) ➡ : B-Y Signal route (Sub-picture)
- (P) ➡ : P IN P Y-signal route
- (P) ➡ : P IN P C-signal route

04: RST. SW

otherwise noted.



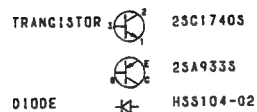
| IC2201 (TC4051BP) |             |         |             |
|-------------------|-------------|---------|-------------|
| Pin No.           | Voltage (V) | Pin No. | Voltage (V) |
| 1                 | 2.09        | 9       | 0.0         |
| 2                 | 0.0         | 10      | 0.0         |
| 3                 | -0.68       | 11      | 6.0         |
| 4                 | 0.0         | 12      | 2.09        |
| 5                 | 0.0         | 13      | -0.4        |
| 6                 | 0.0         | 14      | 2.09        |
| 7                 | -4.91       | 15      | 2.09        |
| 8                 | 0           | 16      | 4.81        |

P IN P ASSY (2/2),  
P IN P SELECTOR  
ASSY

SCH-10



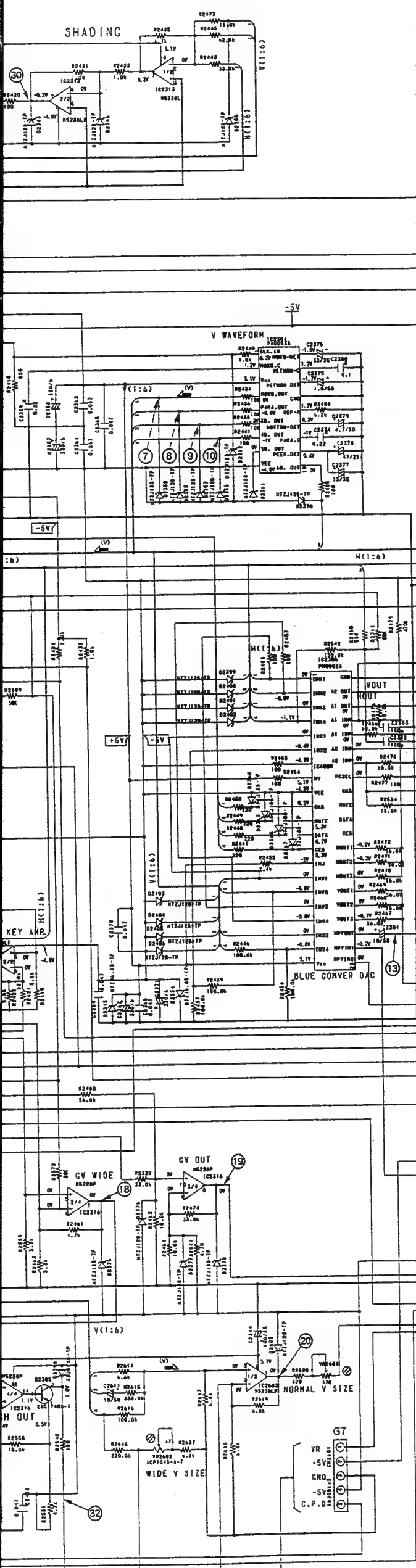
CONVERGENCE ASSY (AWZ5981)



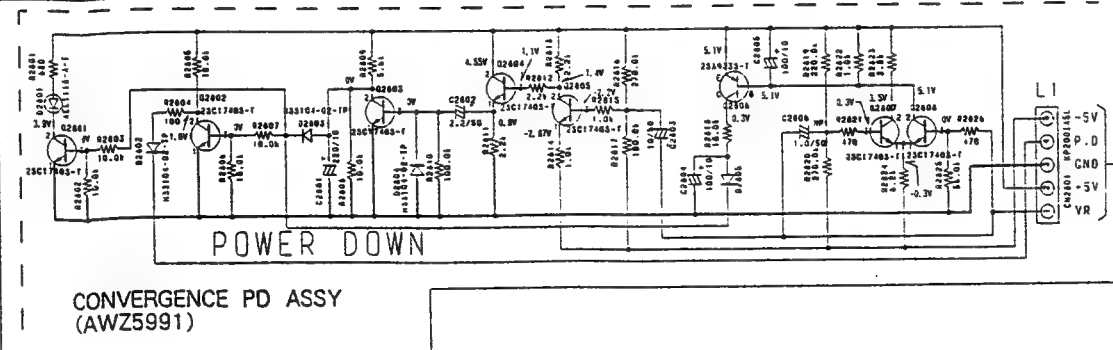
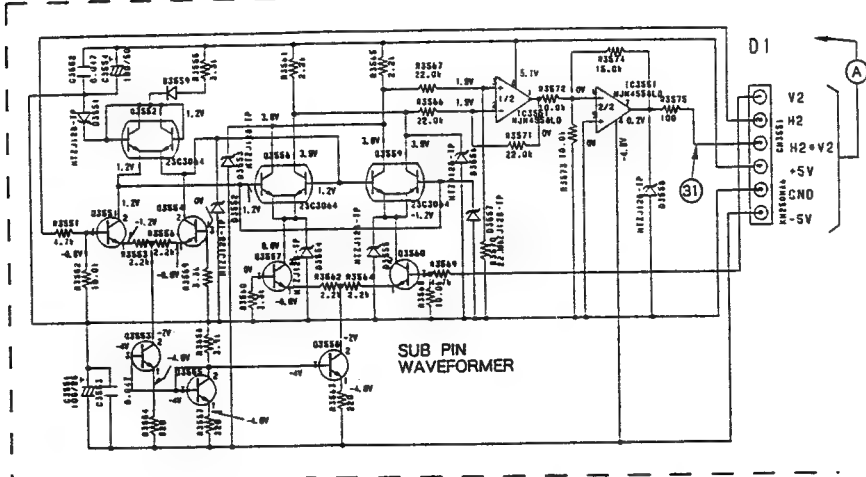
CONVERGENCE ASSY,  
SUB CONVERGENCE ASSY,  
CONVERGENCE PD ASSY

SCH-11

V: V. Deflection signal route



SUB CONVERGENCE ASSY (AWZ6001)

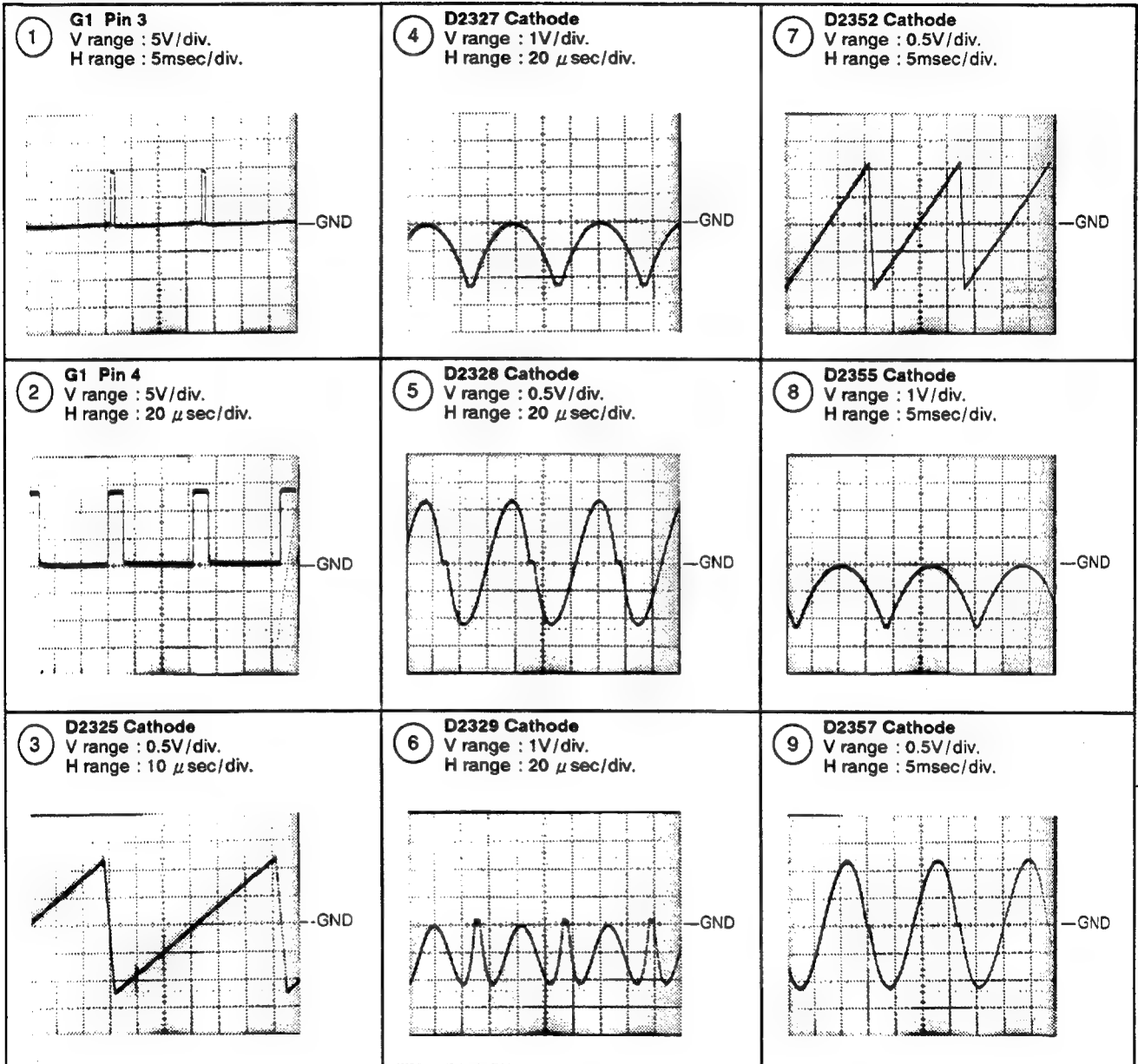


CONVERGENCE ASSY,  
SUB CONVERGENCE ASSY,  
CONVERGENCE PD ASSY

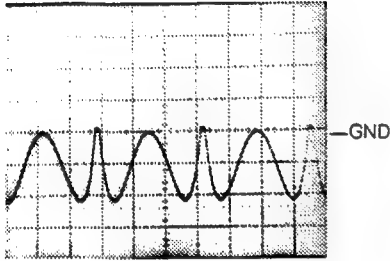
SCH-11

• Waveforms at CONVERGENCE AND SUB CONVERGENCE ASSEMBLIES

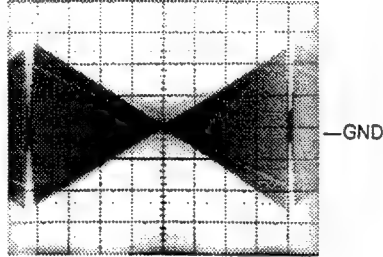
- Input signal : Color bar
- Picture quality : standard
- DC range ( Unless otherwise noted. )



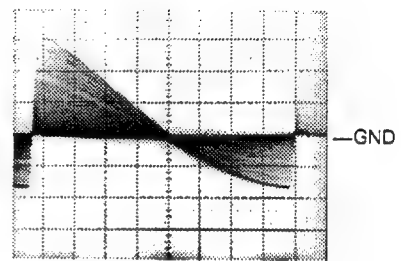
⑩ D2358 Cathode  
V range : 1V/div.  
H range : 5msec/div.



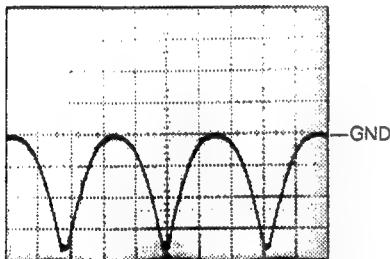
⑭ C2345 — side  
V range : 0.5V/div.  
H range : 2msec/div.



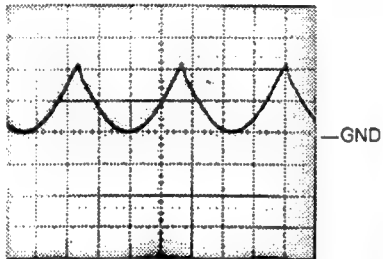
⑱ IC2316 Pin 7  
V range : 0.2V/div.  
H range : 2msec/div.



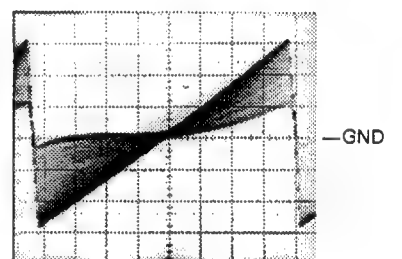
⑪ IC2320 Pin 7  
V range : 0.2V/div.  
H range : 20  $\mu$ sec/div.



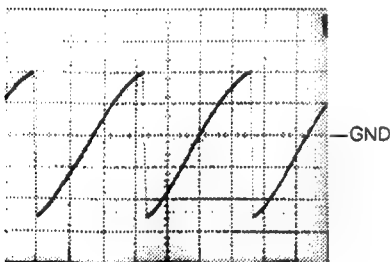
⑮ IC2319 Pin 7  
V range : 1V/div.  
H range : 5msec/div.



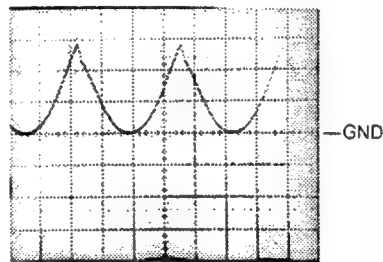
⑲ IC2316 Pin 8  
V range : 0.2V/div.  
H range : 2msec/div.



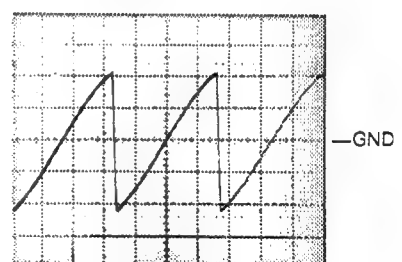
⑫ IC2321 Pin 7  
V range : 0.5V/div.  
H range : 5msec/div.



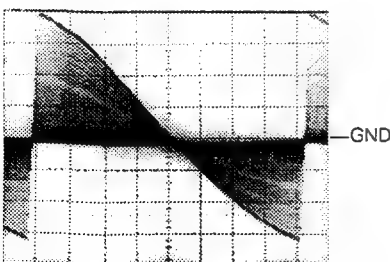
⑯ Between R2391 and R2393  
V range : 1V/div.  
H range : 5msec/div.



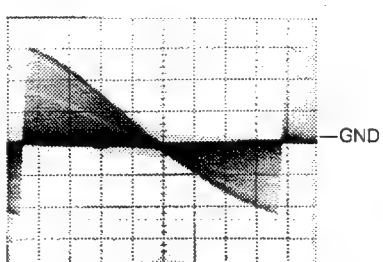
⑳ -1 IC2603 Pin 1  
V range : 0.5V/div.  
H range : 5msec/div.  
(Normal)



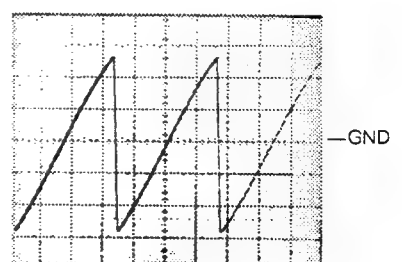
⑬ C2381 — side  
V range : 0.2V/div.  
H range : 2msec/div.



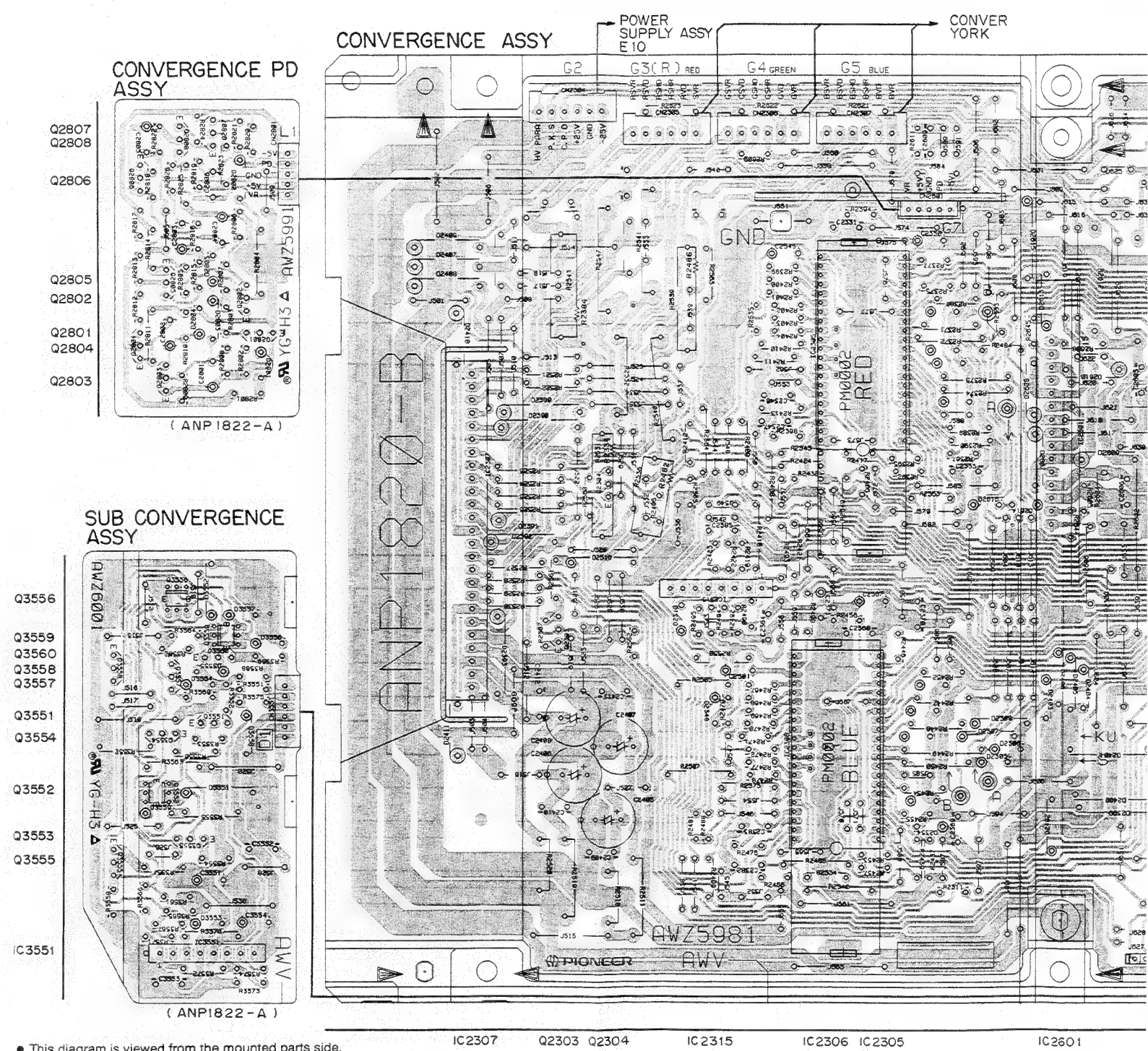
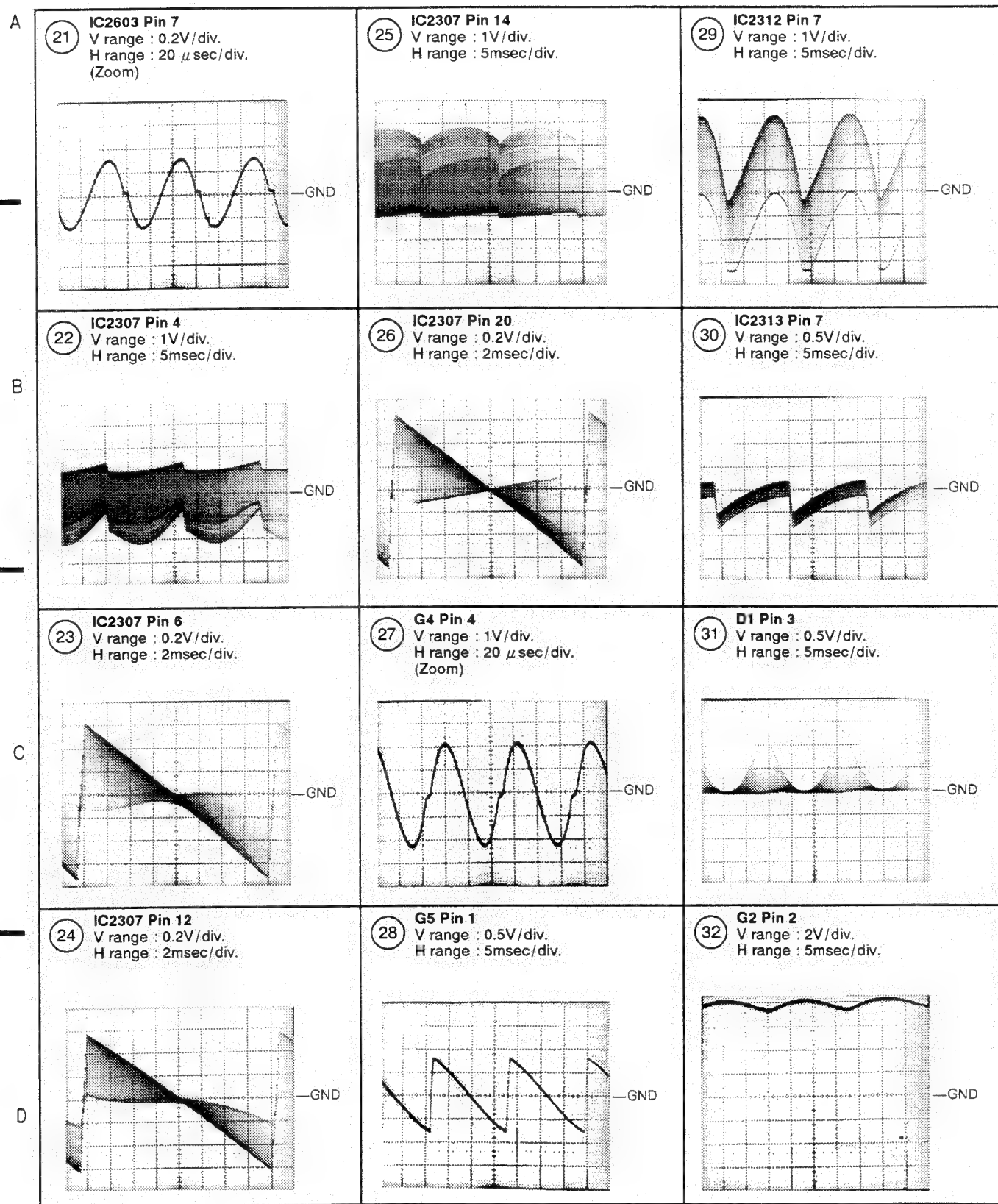
⑰ IC2319 Pin 1  
V range : 0.2V/div.  
H range : 2msec/div.



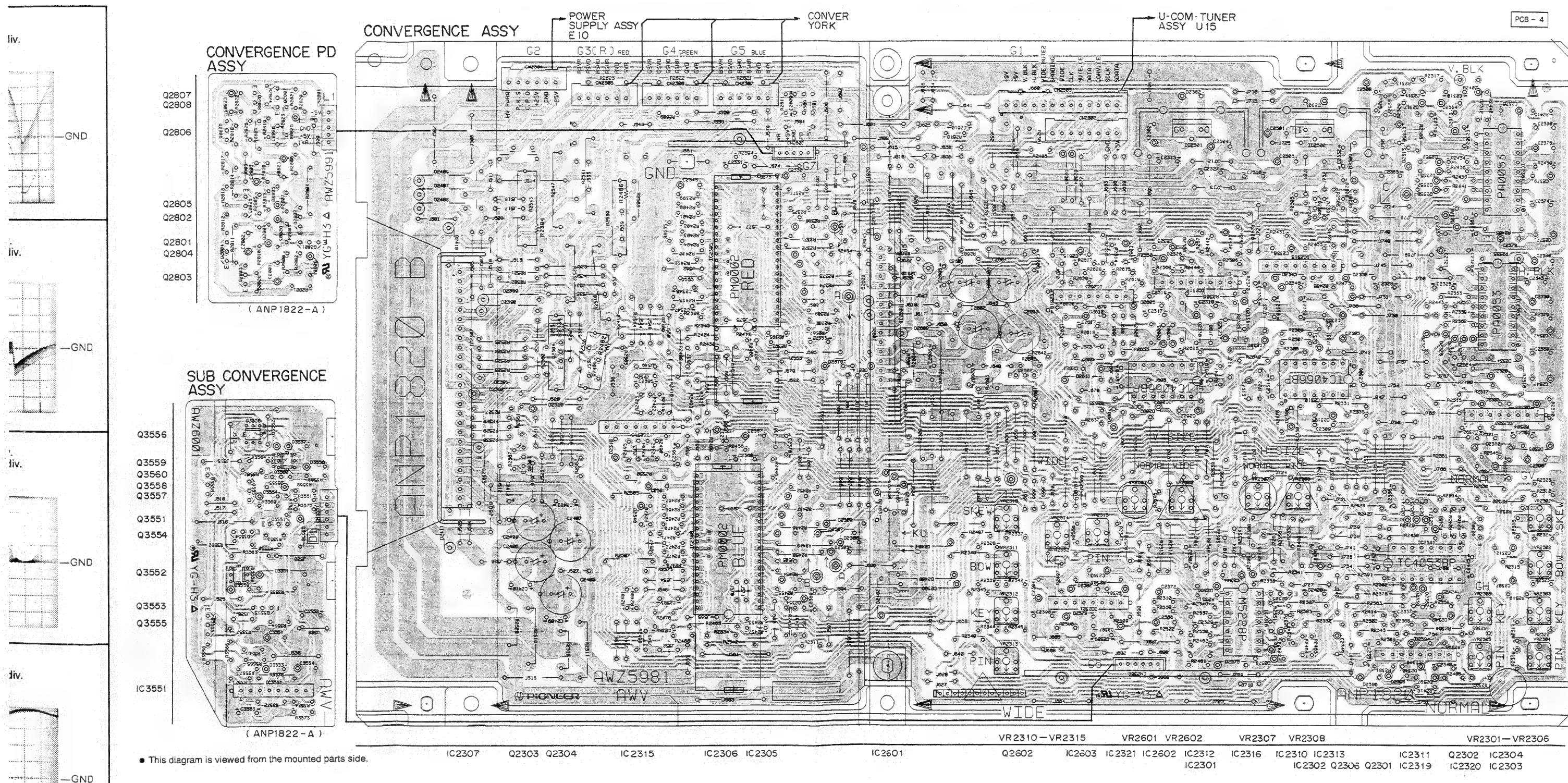
⑳ -2 IC2603 Pin 1  
V range : 0.5V/div.  
H range : 5msec/div.  
(Zoom)





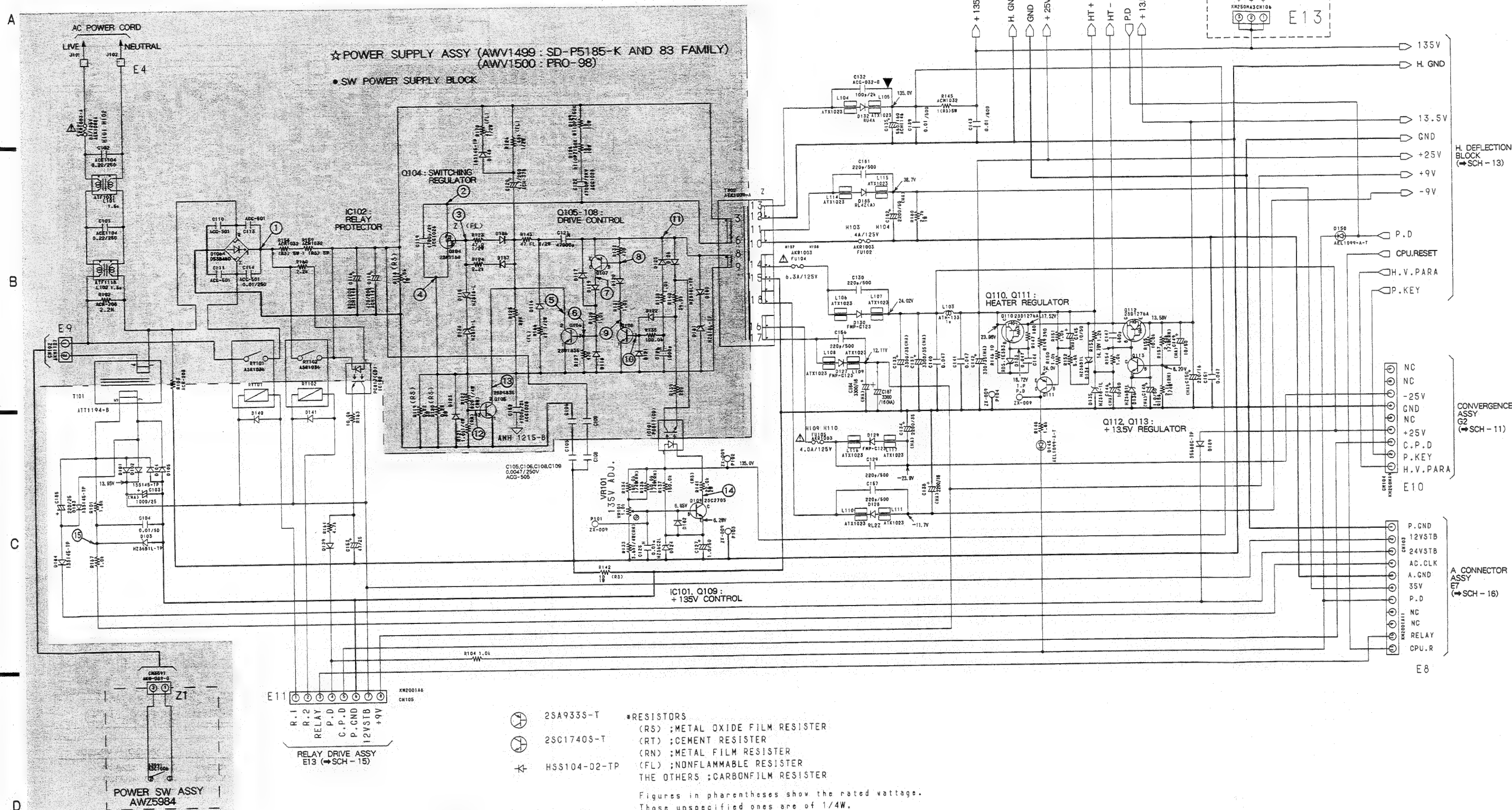








# 7.12 POWER SUPPLY ASSY (1/3) AND POWER SW ASSY



- Waveforms  
SUPPLY ASSY  
(SW POWER)
- Input signal : Cc
- Picature quality
- DC range ( Unle

1 D106 Catho  
V range : 20  
H range : 2r

2 Q104 Drain  
V range : 50  
H range : 10

3 Q104 Source  
V range : 50  
H range : 10

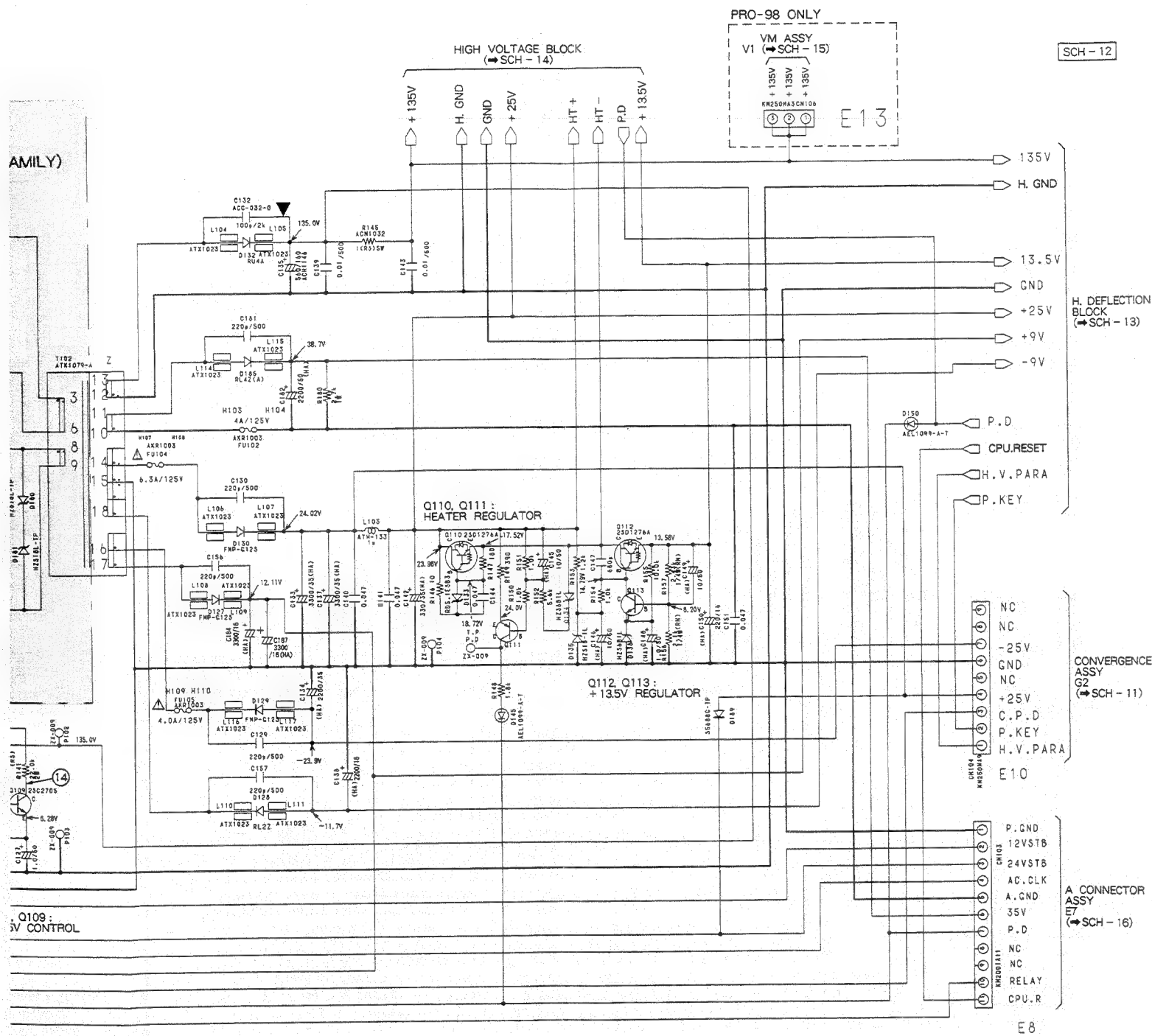
SCH-12

POWER SUPPLY  
ASSY (1/3),  
POWER SW ASSY

POWER SUPPLY  
ASSY (1/3),  
POWER SW ASSY

SCH-12





AL OXIDE FILM RESISTOR  
IENT RESISTOR  
AL FILM RESISTOR  
IFLAMMABLE RESISTOR  
S : CARBONFILM RESISTOR

n parentheses show the rated voltage.  
pecified ones are of 1/4W.

.Unspecified ones are of .

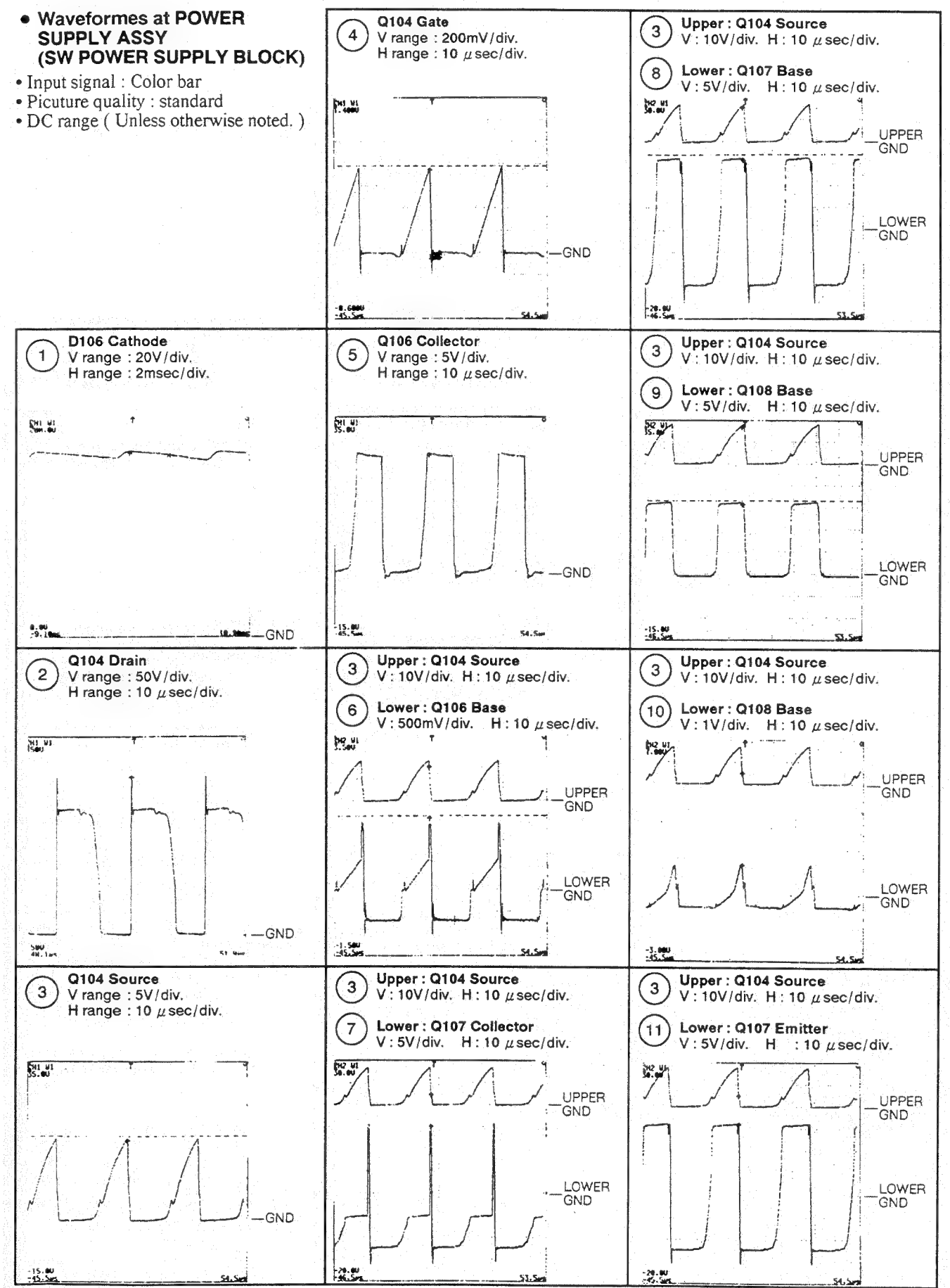
pecified ones are of F  
ity  
Voltage( :A.C . No mark:D.C)  
ed ones are of 50V

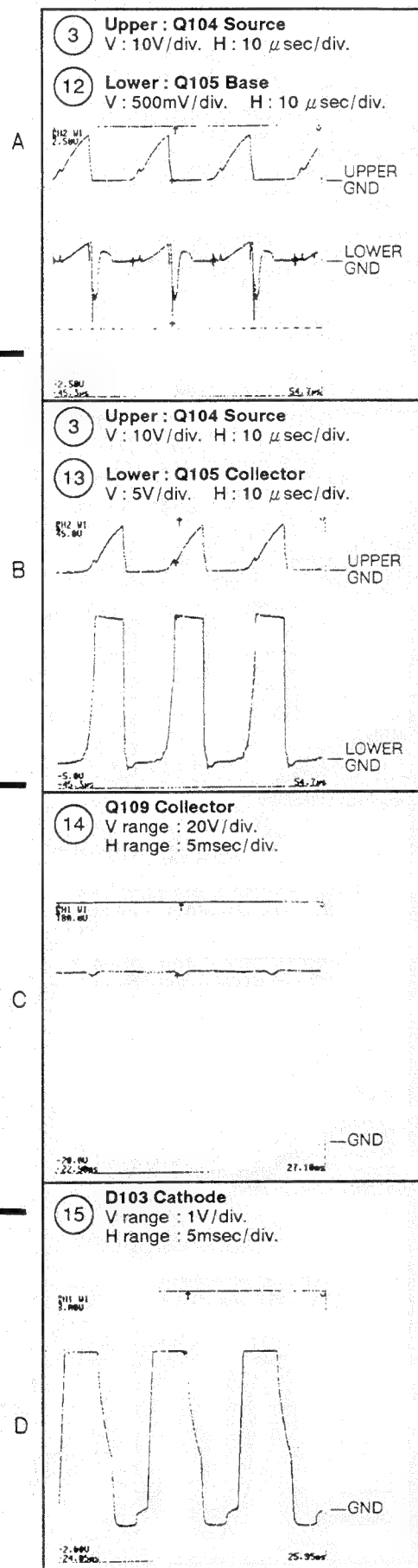
POWER SUPPLY  
ASSY (1/3),  
POWER SW ASSY

**SCH-12**

• Waveforms at POWER  
SUPPLY ASSY  
(SW POWER SUPPLY BLOCK)

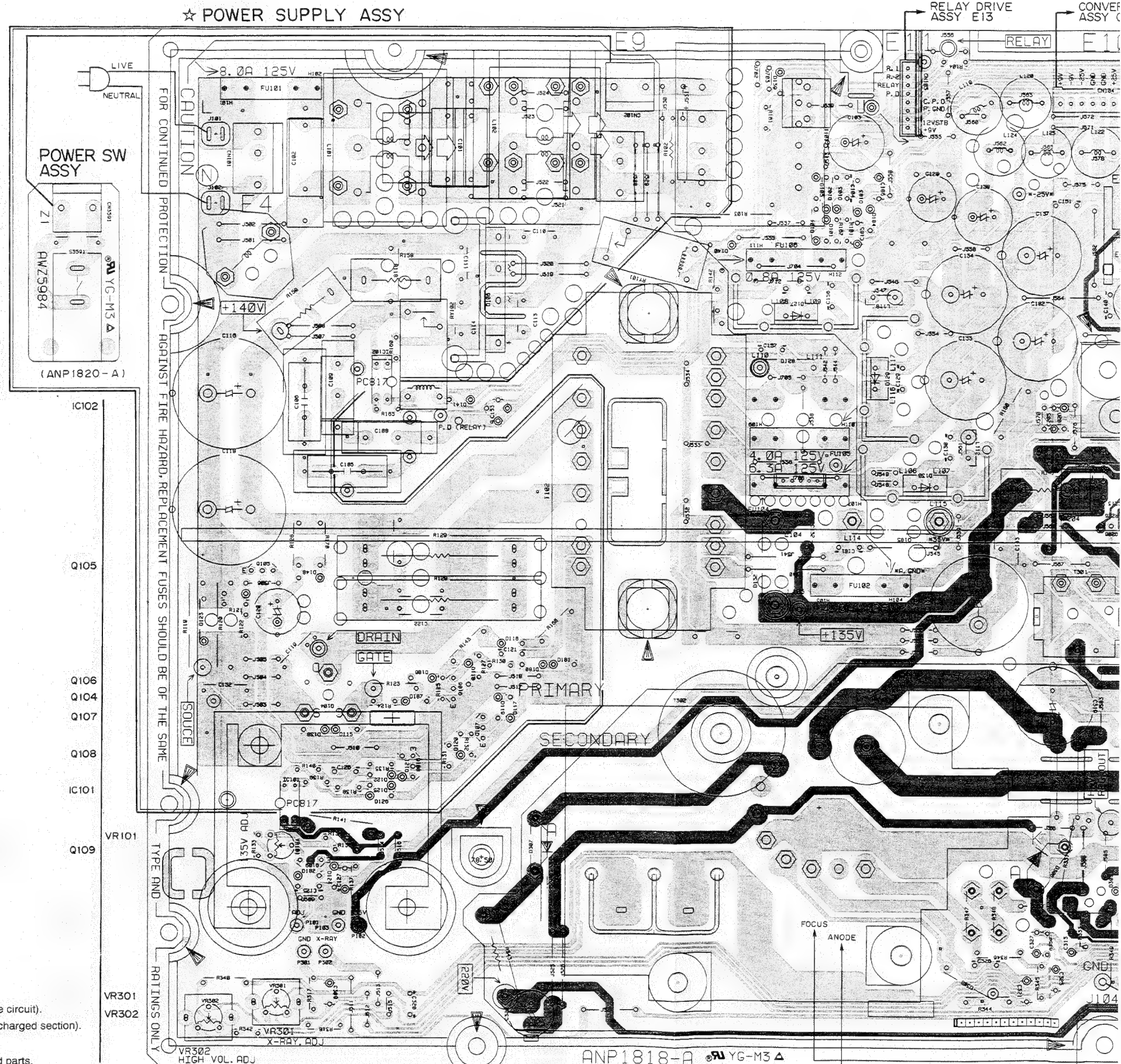
• Input signal : Color bar  
• Picture quality : standard  
• DC range ( Unless otherwise noted. )



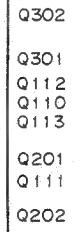


• This diagram is viewed from the mounted parts side.

mark shows the charged section (Power supply primary side circuit).  
mark shows a high voltage generation point (excepting the charged section).  
• Parts marked ☆ are important parts which relate to X-ray radiation.  
If any of these parts need to be replaced. Always replace with specified parts.







VM  
ASSY  
V 1

Q204

Q206

H. DY

Q307

IC201

Q309

Q209  
Q304

Q304

Q308

55

Q303

IC301  
Q305

19308

## VR FOCUS

81

7.13 POWER SUPPLY ASSY (2/3)

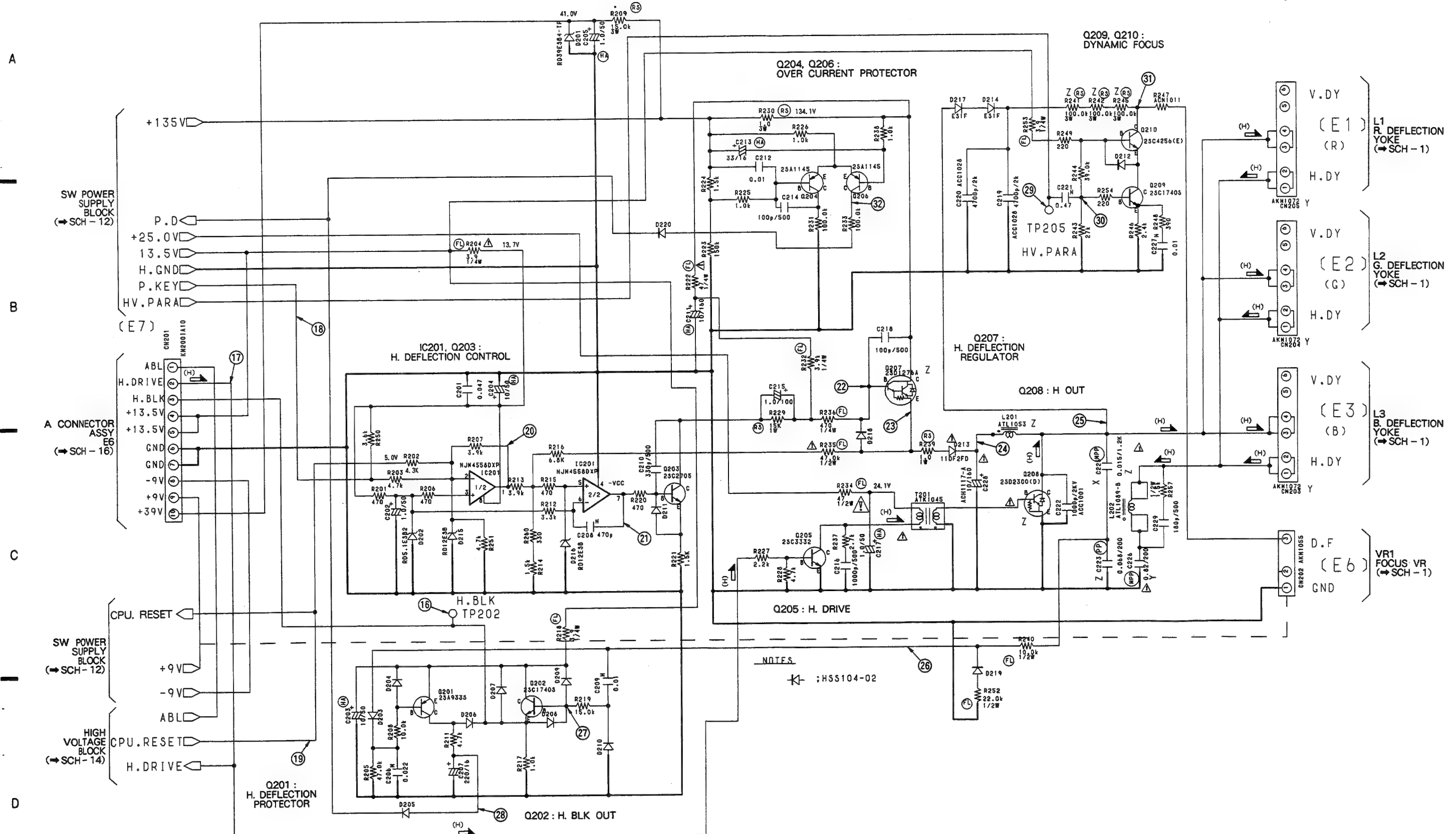
☆POWER SUPPLY ASSY (AWV1499 : SD-P5185-K AND 83 FAMILY)  
(AWV1500 : PRO-98)

• H. DEFLECTION BLOCK

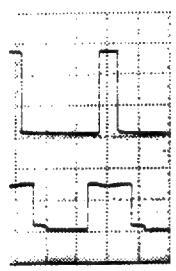
(H) : H. Deflection signal route

SCH-13

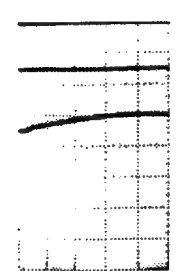
• Waveforms  
SUPPLY AS  
(H. DEFLEC  
• Input signal : C  
• Picture quality  
• DC range (Unl



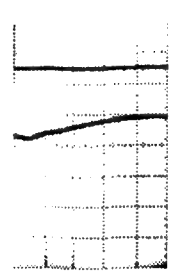
Upper: T  
V range :  
H range :  
Lower: E  
V range :  
H range :



Upper: T  
V range :  
H range :  
Lower: E  
V range :  
H range :  
(Norma



Upper: T  
V range :  
H range :  
Lower: E  
V range :  
H range :  
(Zoom)



SCH-13

POWER SUPPLY  
ASSY (2/3)

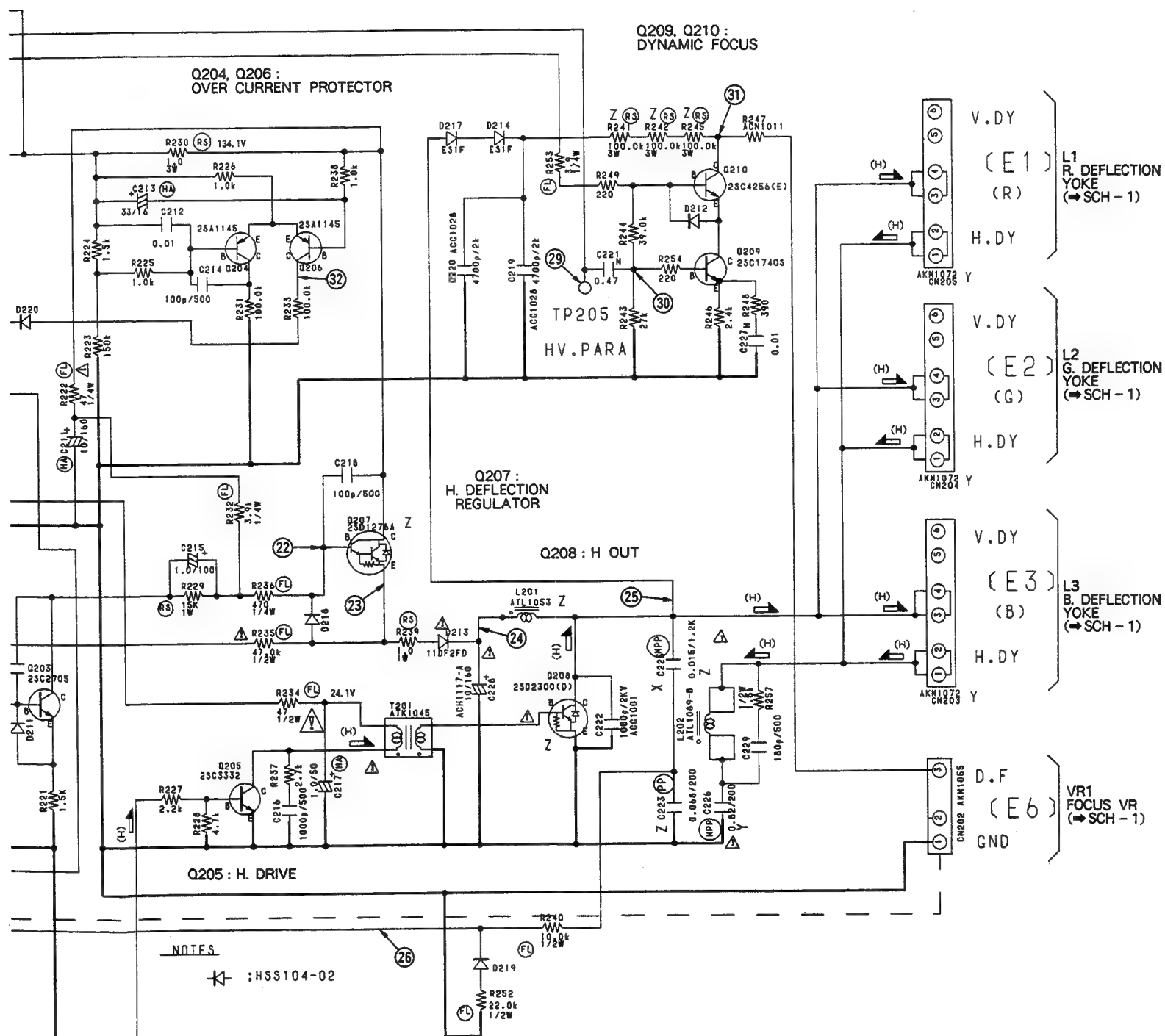
POWER SUPPLY  
ASSY (2/3)

SCH-13



• H. DEFLECTION BLOCK

(H) : H. Deflection signal route

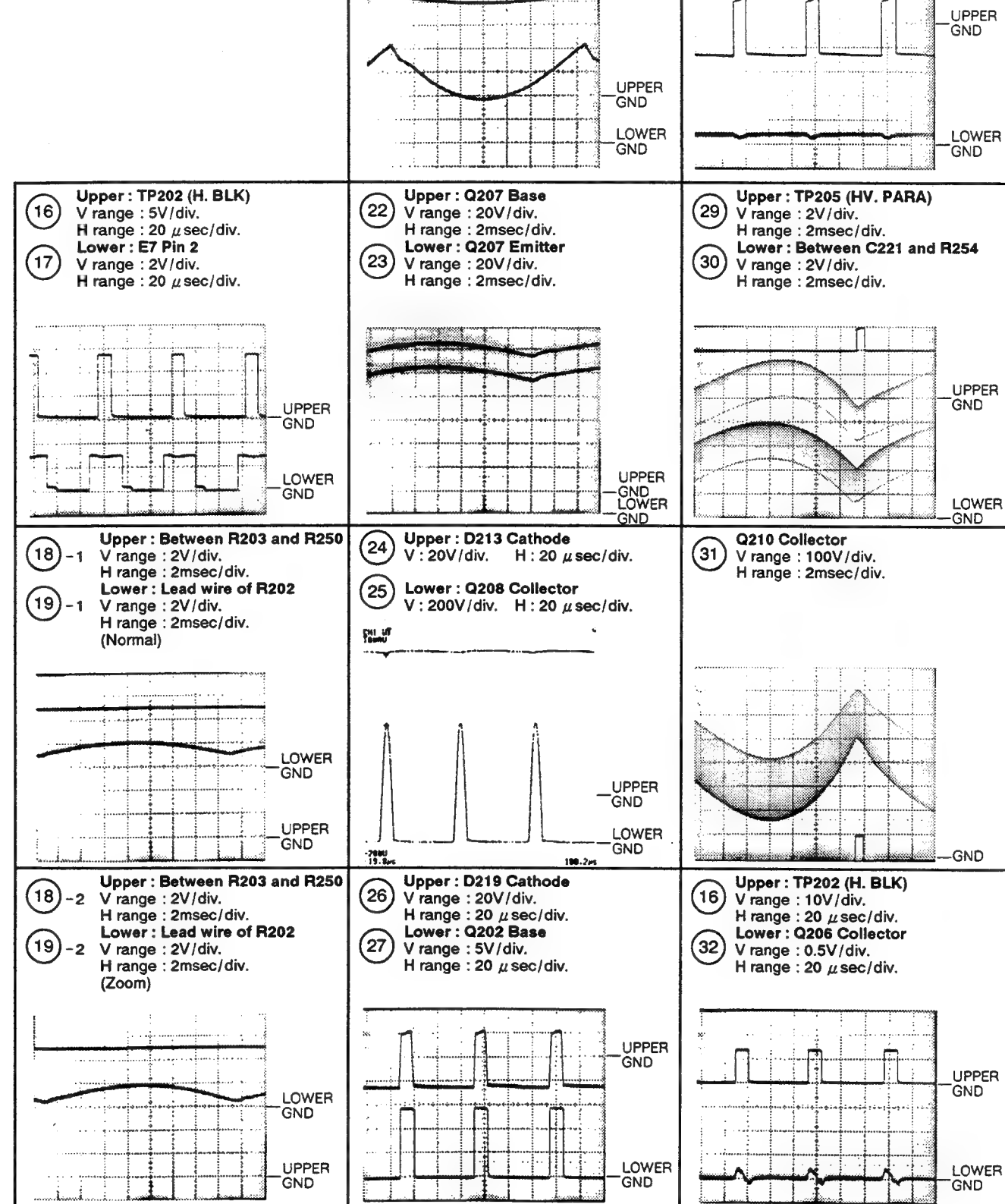


POWER SUPPLY  
ASSY (2/3)

SCH-13

• Waveforms at POWER  
SUPPLY ASSY  
(H. DEFLECTION BLOCK)

- Input signal : Color bar
- Picture quality : standard
- DC range ( Unless otherwise noted. )



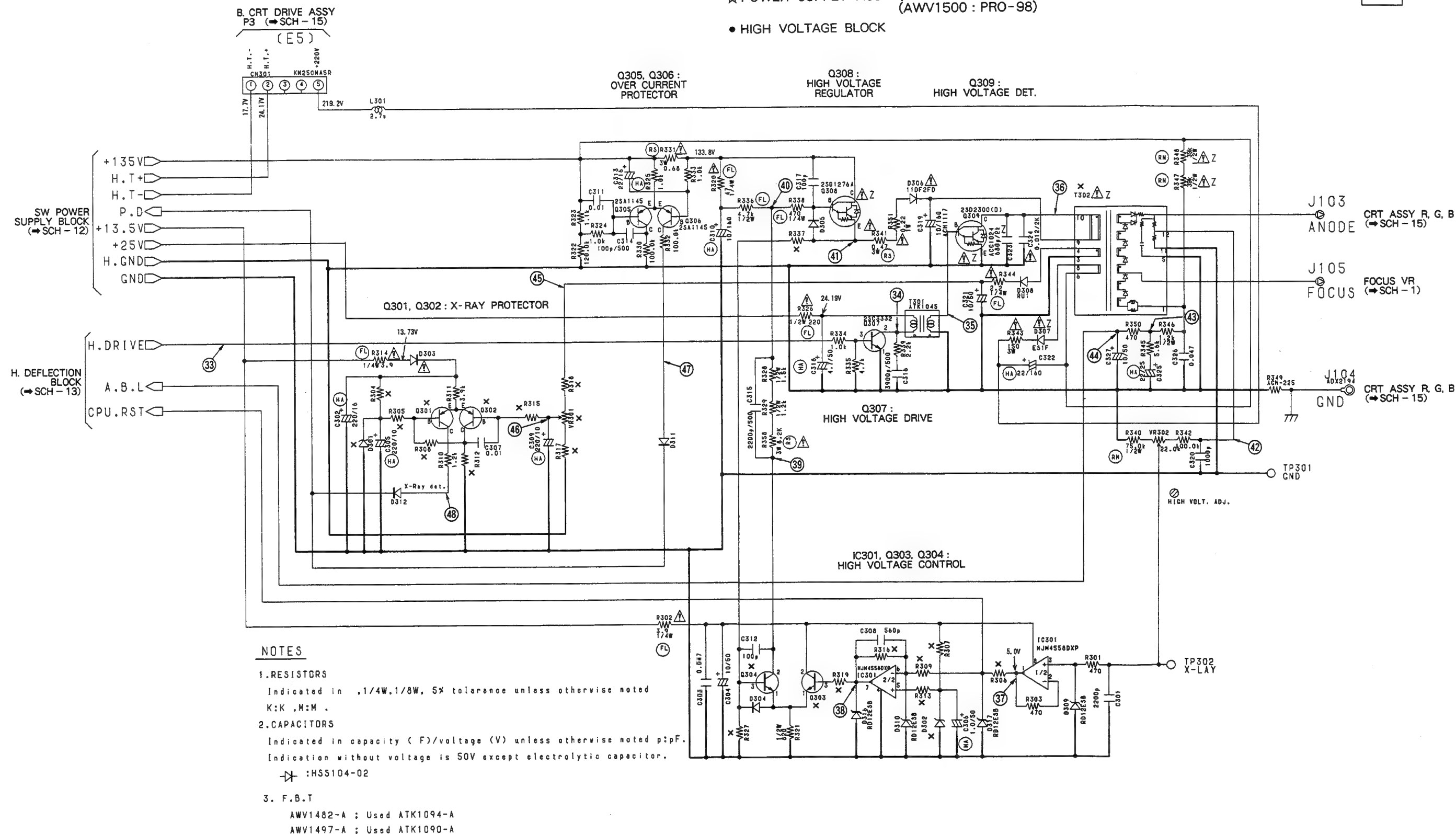


# 7.14 POWER SUPPLY ASSY (3/3)

☆ POWER SUPPLY ASSY (AWV1499 : SD-P5185-K AND 83 FAMILY)  
(AWV1500 : PRO-98)

SCH-14

• HIGH VOLTAGE BLOCK



SCH-14

POWER SUPPLY  
ASSY (3/3)

POWER SUPPLY  
ASSY (3/3)

SCH-14

• Wave  
SUPP  
(HIGH  
• Input si  
• Picoture  
• DC rang

33 Up  
Vr  
Hr  
Lo  
Vr  
Hr  
34  
35 Up  
Vr  
36 Lo  
Vr  
37 Up  
Vr  
Hr  
Lo  
Vr  
Hr  
38

39

☆POWER SUPPLY ASSY (AWV1499 : SD-P5185-K AND 83 FAMILY)  
(AWV1500 : PRO-98)

## 7.15 VM, RELAY DRIVE ASSY, R,G,B CRT DRIVE ASSEMBLIES

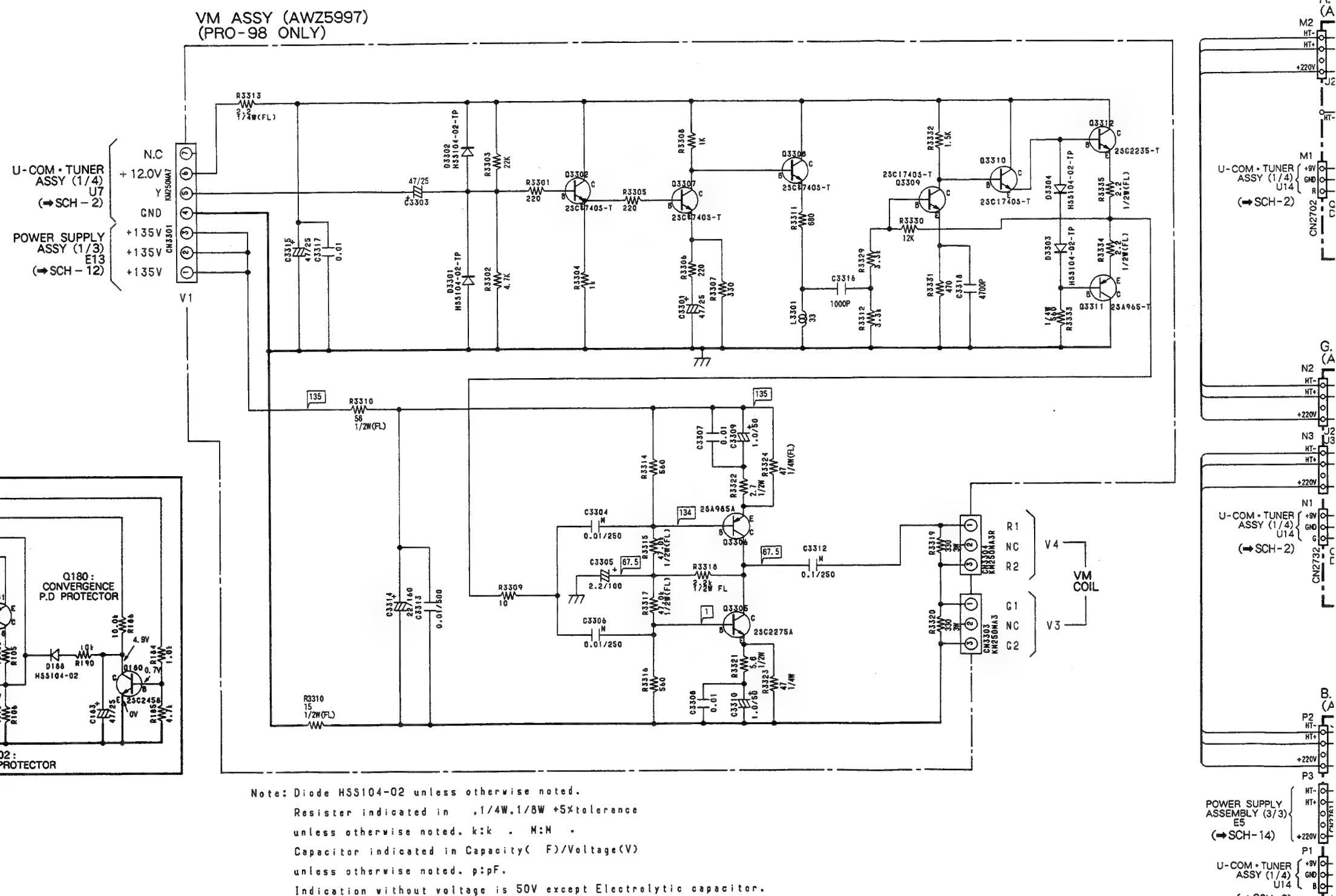
A

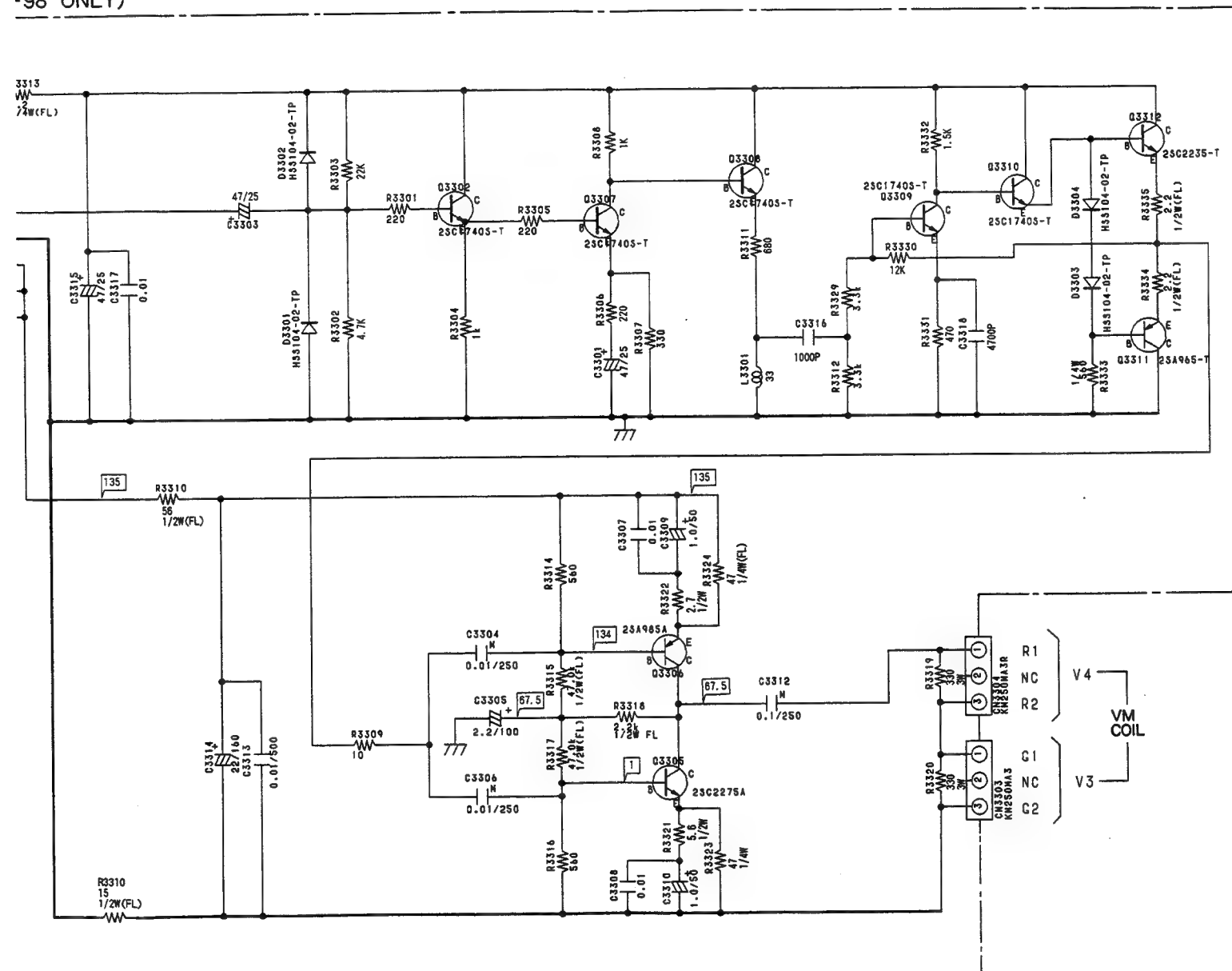
B

C

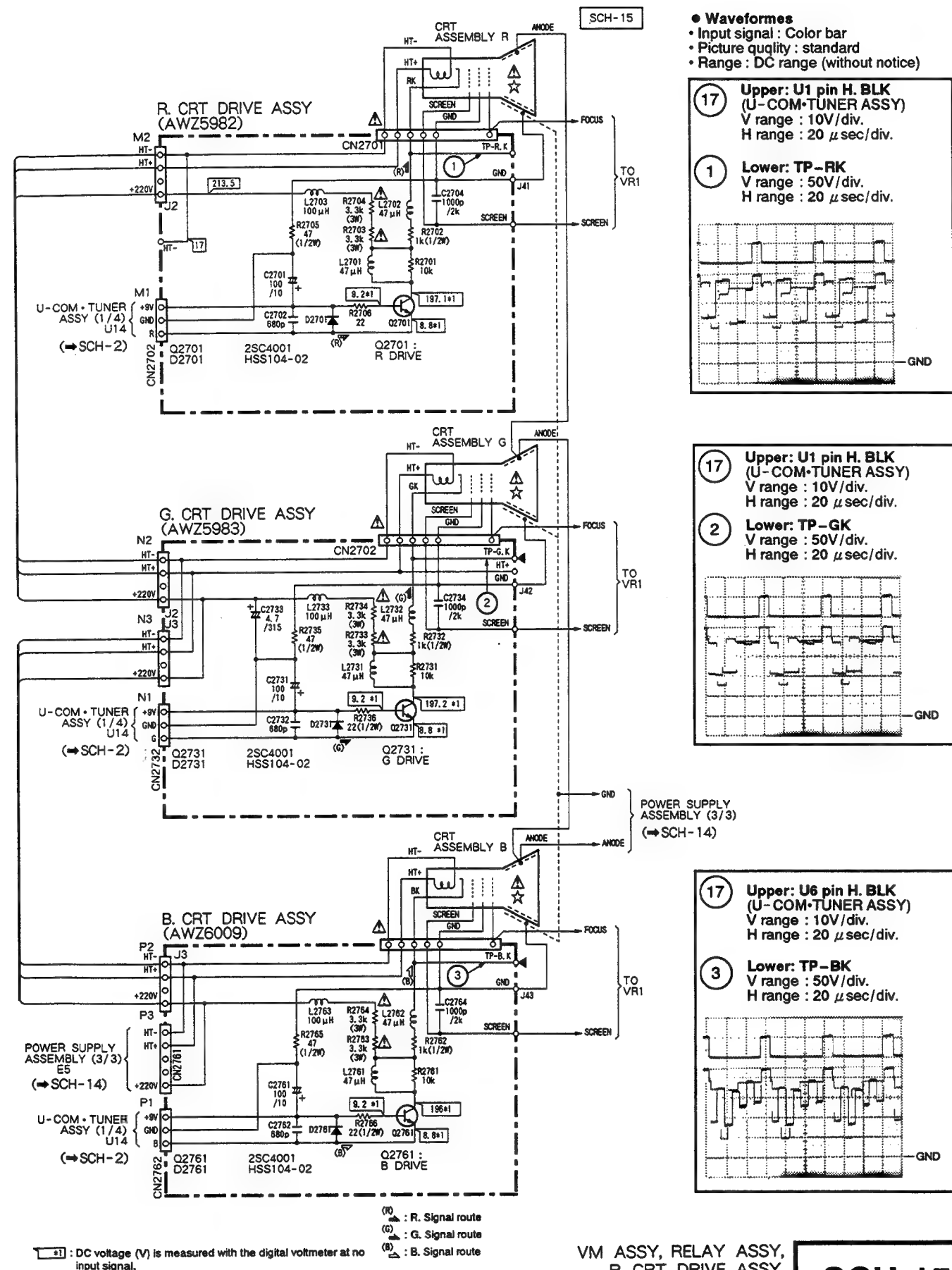
D

SCH-15

VM ASSY, RELAY ASSY,  
R. CRT DRIVE ASSY,  
G. CRT DRIVE ASSY,  
B. CRT DRIVE ASSYE1: DC voltage (V) is me  
input signal.



Note: Diode H5S104-02 unless otherwise noted.  
Resistor indicated in .1/4W, 1/8W +5% tolerance  
unless otherwise noted. k:k . M:M  
Capacitor indicated in Capacity( F)/Voltage(V)  
unless otherwise noted. p:pF.  
Indication without voltage is 50V except Electrolytic capacitor.

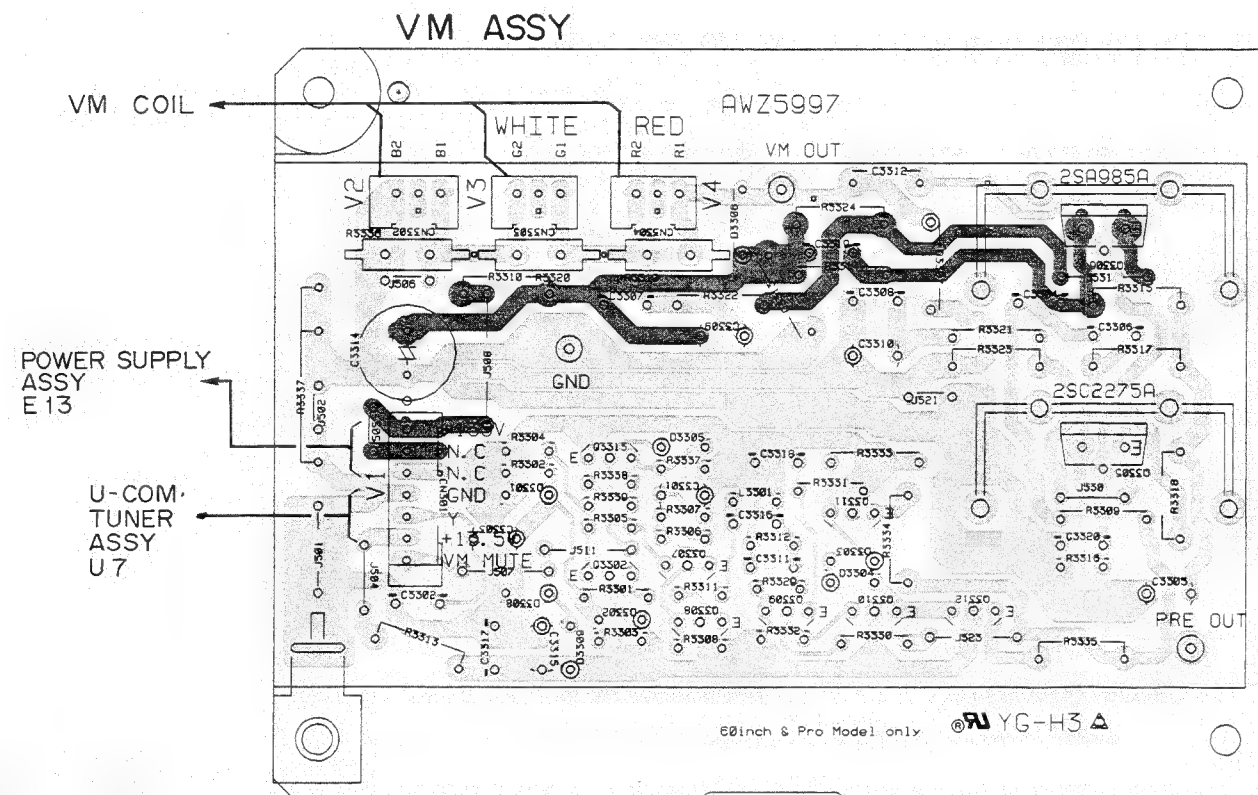
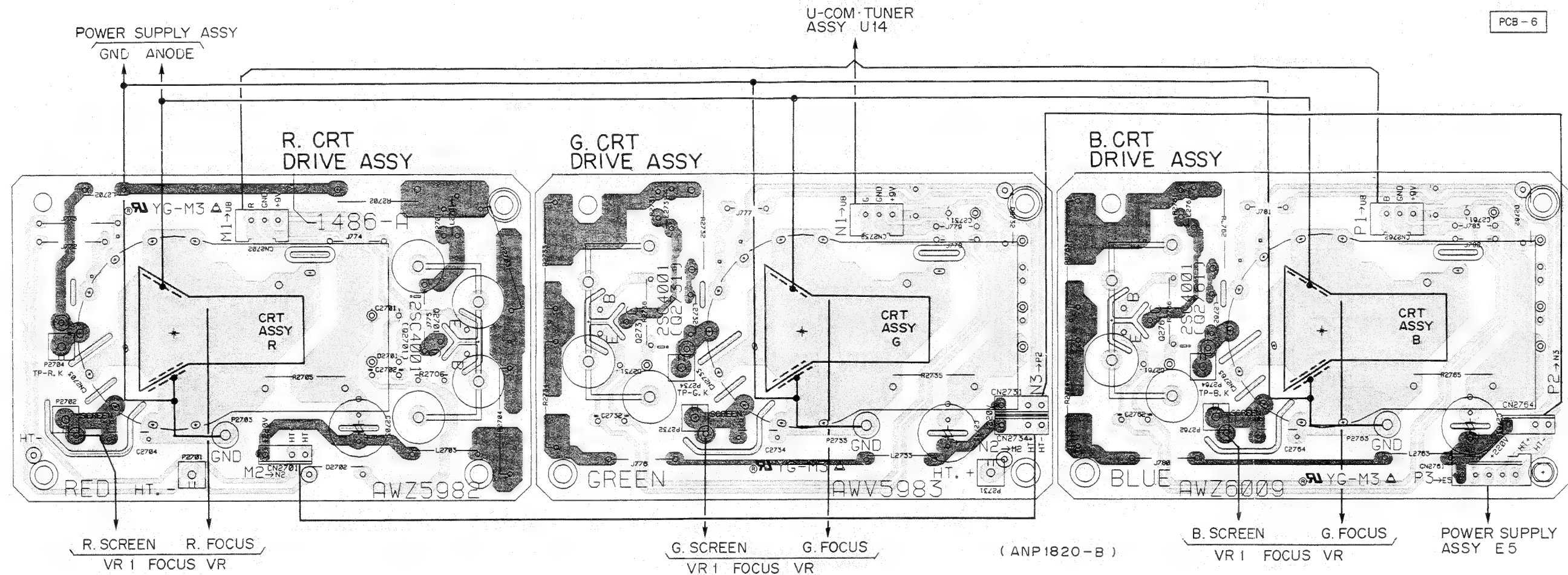


VM ASSY, RELAY ASSY,  
R. CRT DRIVE ASSY,  
G. CRT DRIVE ASSY,  
B. CRT DRIVE ASSY

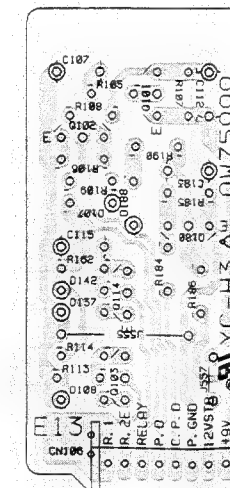
**SCH-15**



PCB - 6



# RELAY DRIVE ASSY

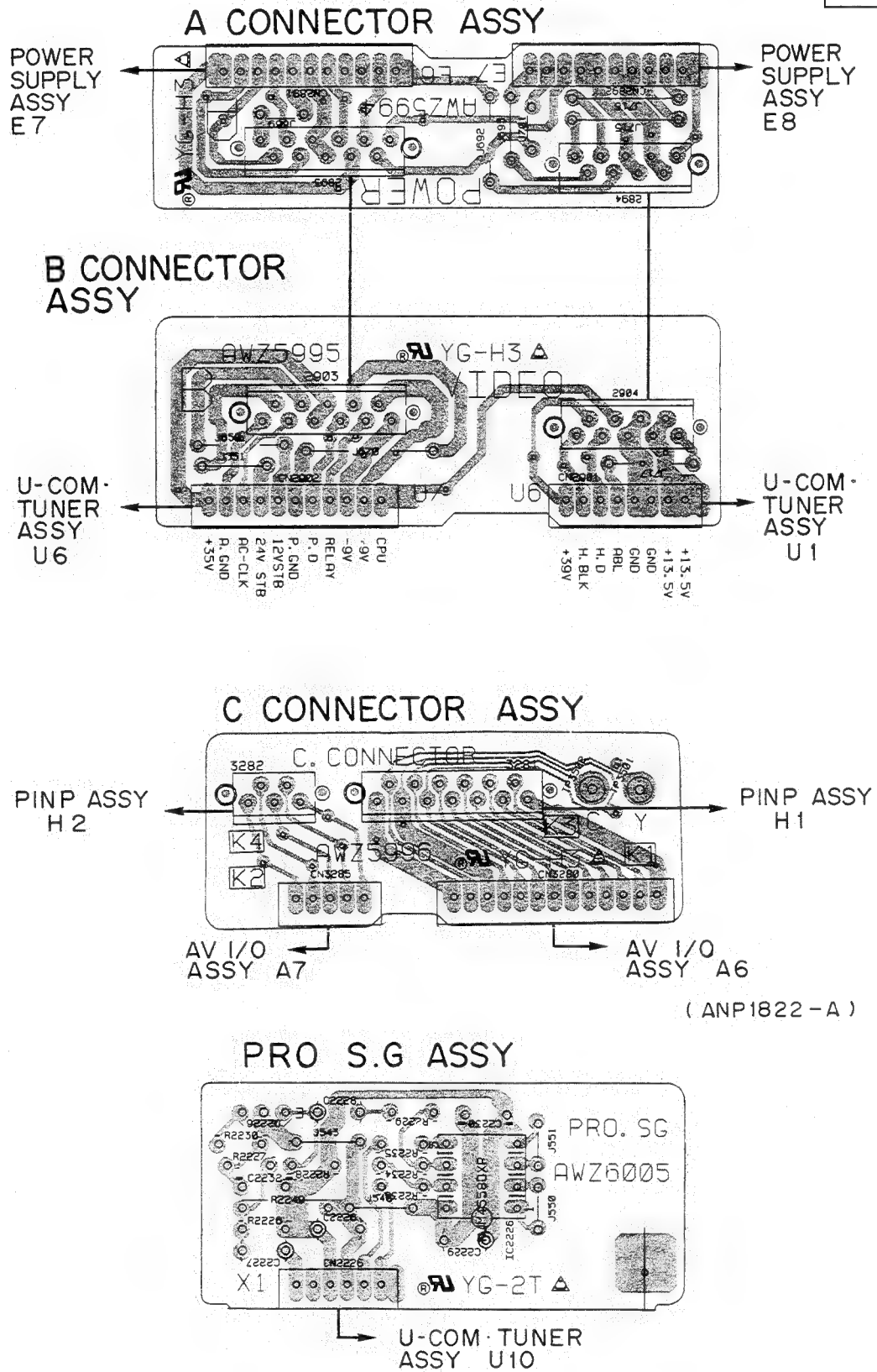


• This diagram is viewed from the mounted parts side.

mark shows a high voltage generation point (excepting the charged section).



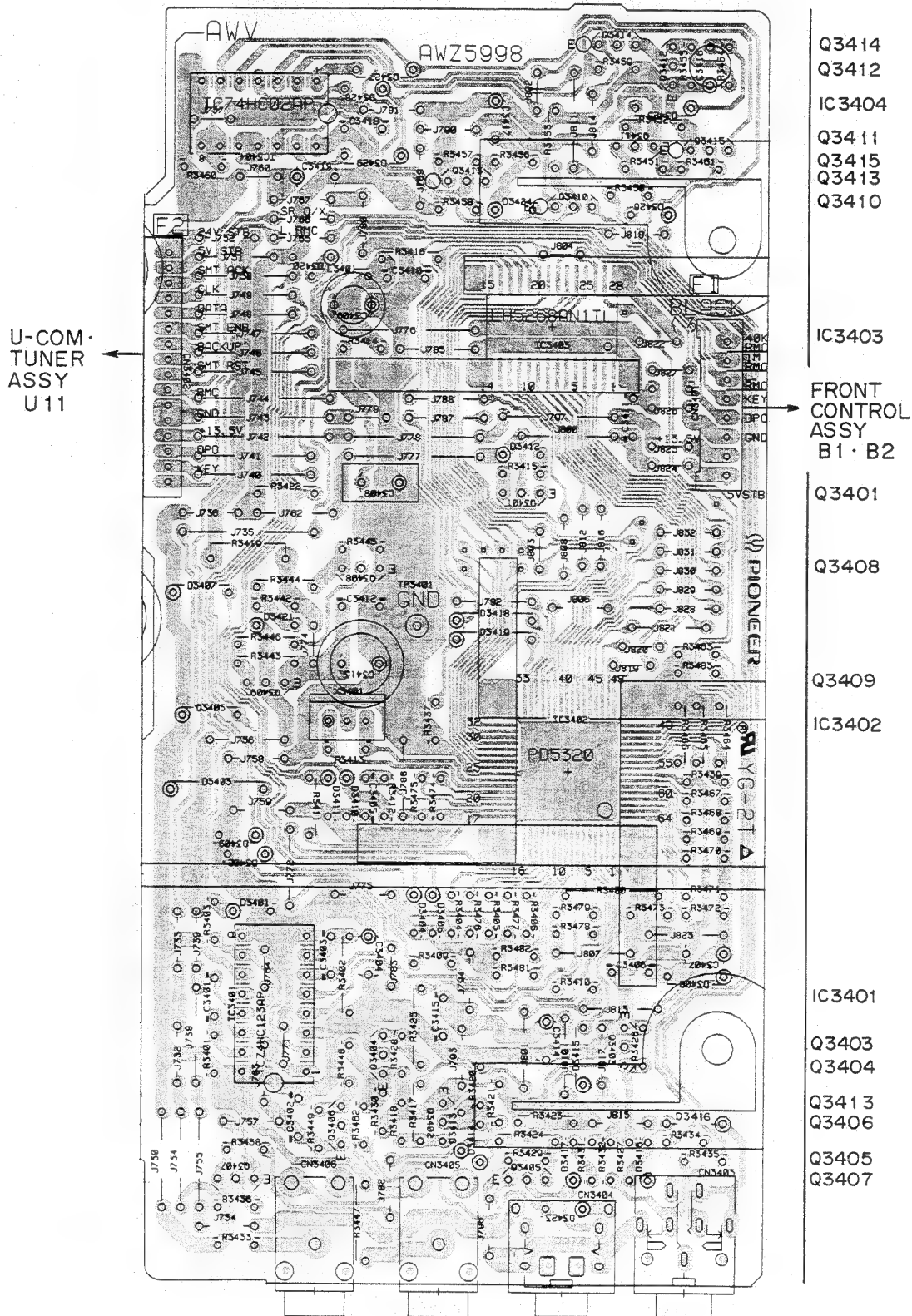
PCB - 7



• This diagram is viewed from the mounted parts side.

**B**

PCB - 8

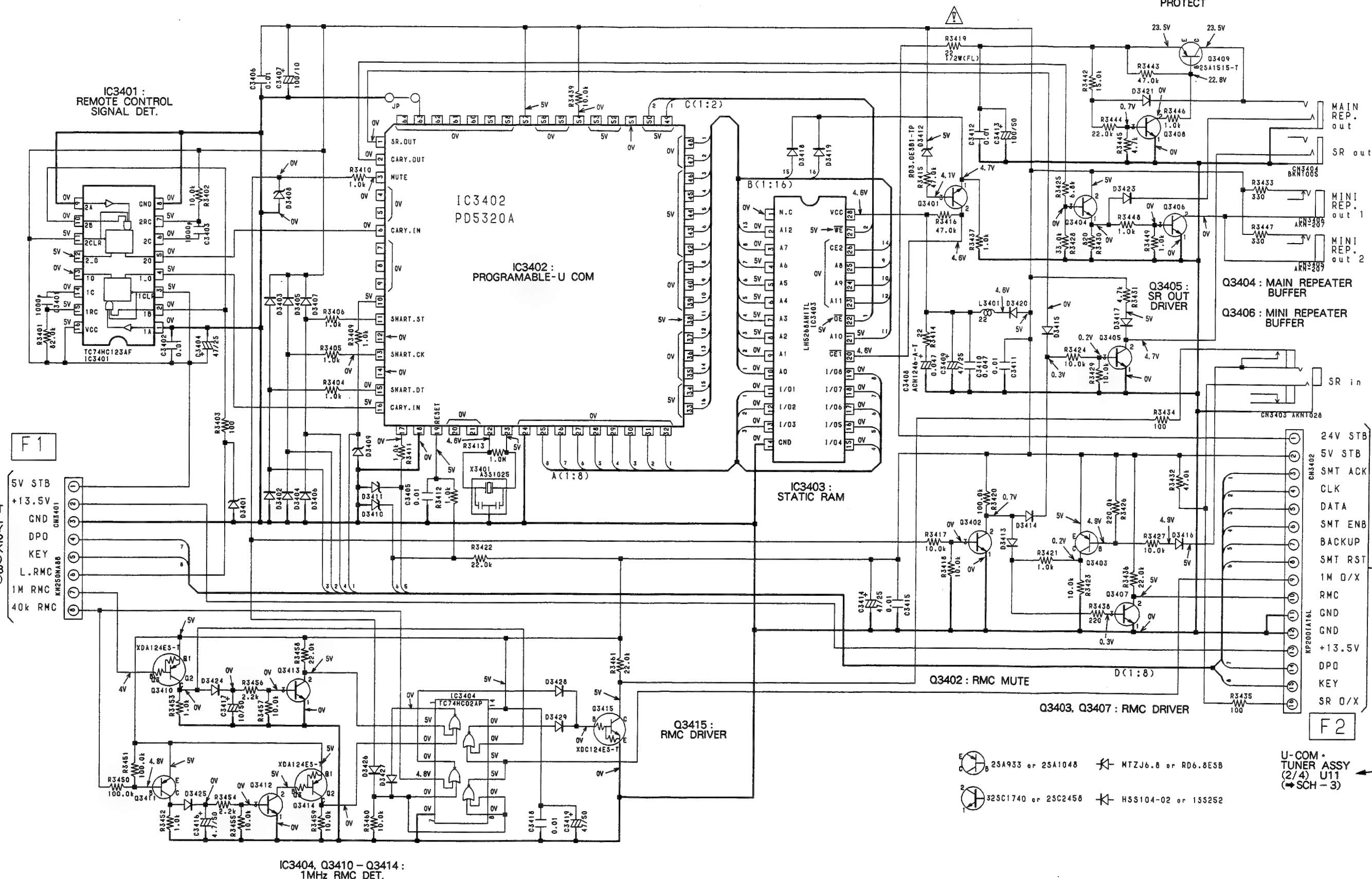


( ANP1821-B )

- This diagram is viewed from the mounted parts side.



## SYSTEM CONTROL ASSY (AWZ5998)

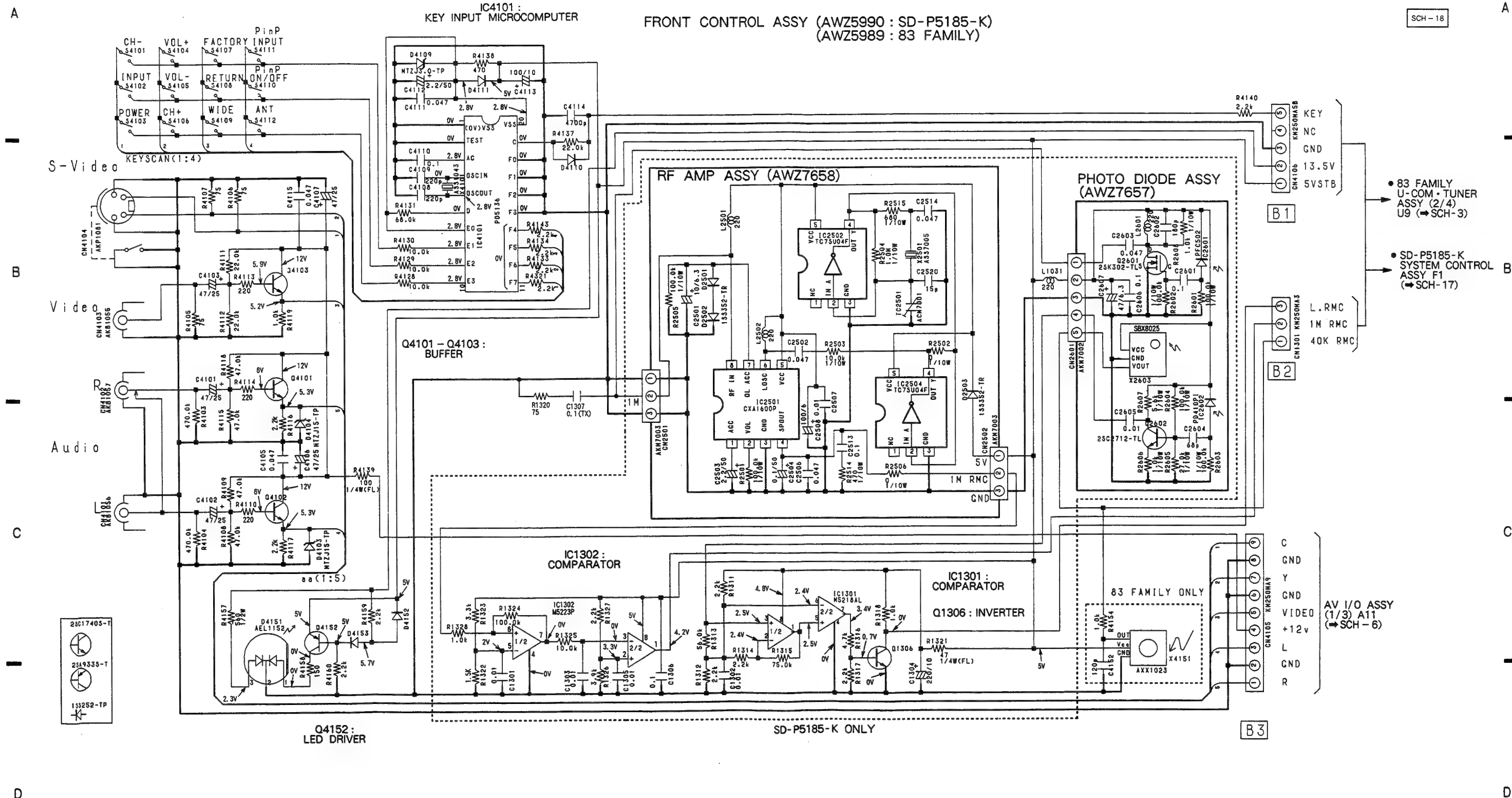
Q3408, Q3409 : OVER CURRENT  
PROTECT

SCH-17

SYSTEM CONTROL  
ASSYSYSTEM CONTROL  
ASSY

SCH-17

# 7.18 FRONT CONTROL, RF AMP AND PHOTO DIODE ASSEMBLIES (FOR SD-P5185-K AND 83 FAMILY)



SCH-18

FRONT CONTROL ASSY,  
RF AMP ASSY,  
PHOTO DIODE ASSY

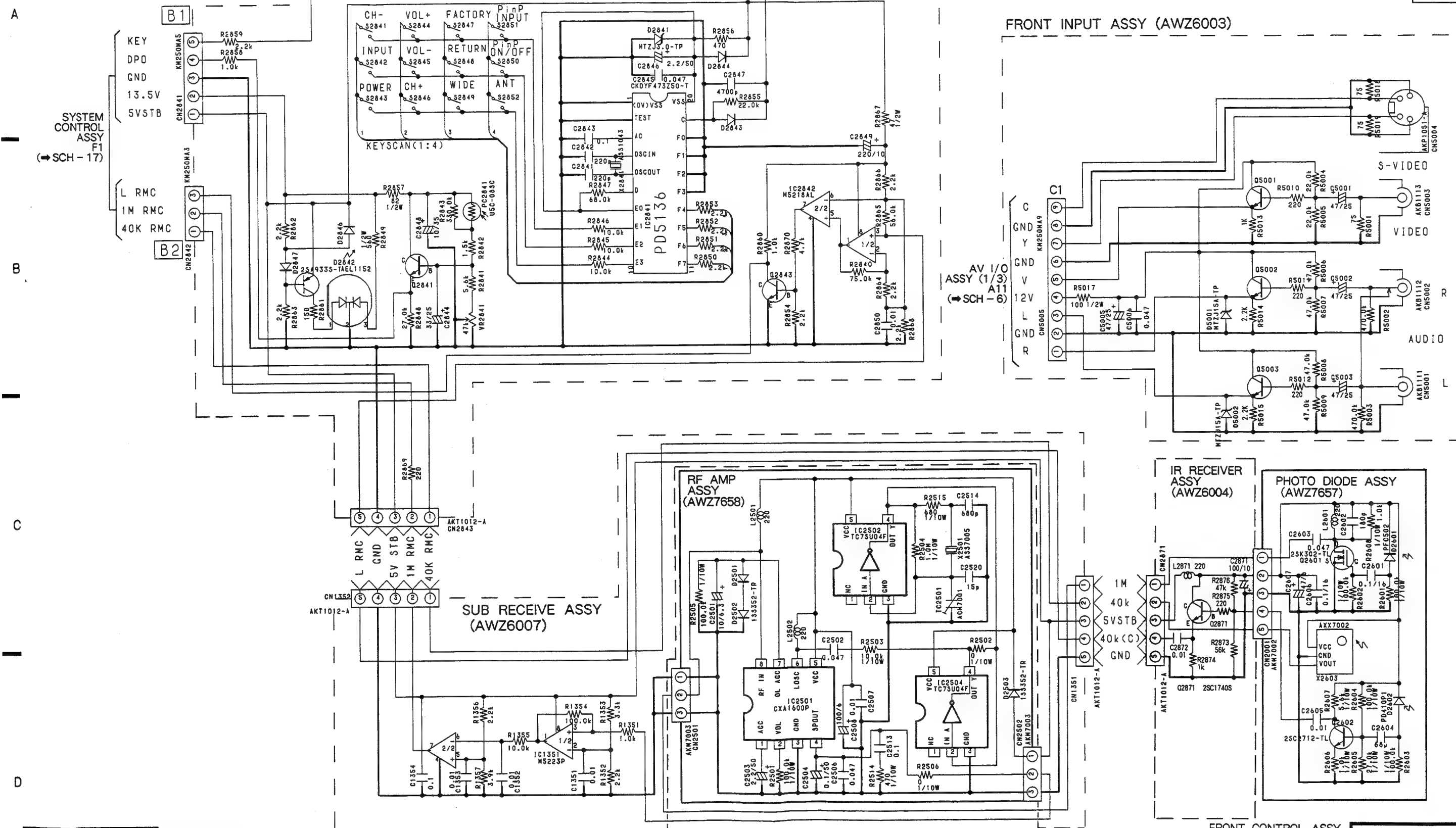
FRONT CONTROL ASSY,  
RF AMP ASSY,  
PHOTO DIODE ASSY

SCH-18

PHOTO DIODE  
ASSY

# 7.19 FRONT CONTROL, FRONT INPUT, SUB RECEIVE, RF AMP, IR RECEIVER AND PHOTO DIODE ASSEMBLIES (FOR PRO-98)

FRONT CONTROL ASSY (AWZ6002)



FRONT CONTROL ASSY,  
FRONT ASSY,  
SUB RECEIVE ASSY,  
RF AMP ASSY,  
PHOTO DIODE ASSY

SCH-19

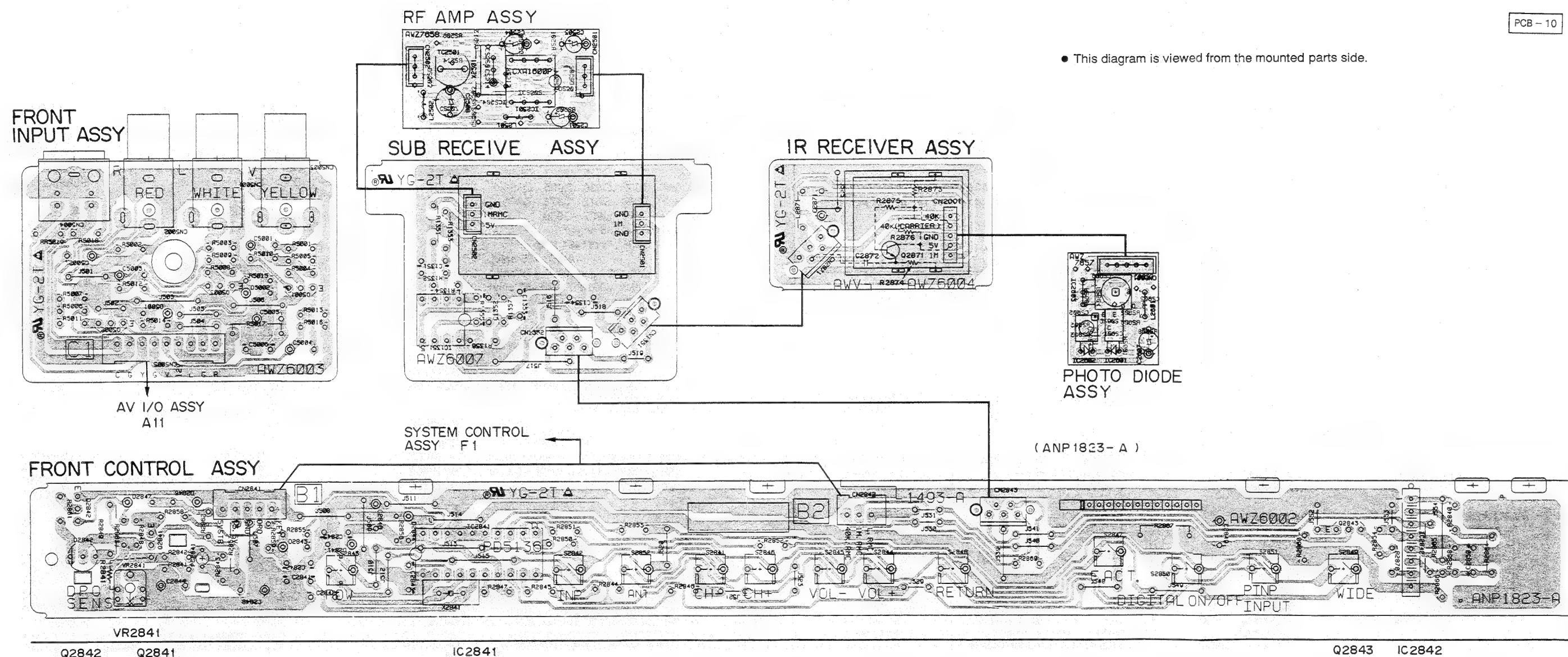
FRONT CONTROL ASSY,  
FRONT ASSY,  
SUB RECEIVE ASSY,  
RF AMP ASSY,  
PHOTO DIODE ASSY

SCH-19



PCB - 10

• This diagram is viewed from the mounted parts side.



8. PCB PARTS LIST

NOTES:

- Parts marked by “NSP” are generally unavailable because they are not in our Master Spare Parts List.
- The “ $\Delta$ ” mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by “ $\odot$ ” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.  
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohms and 47k ohms (Tolerance is shown by J = 5%, and K =10%).  
 $560\Omega \rightarrow 56 \times 10^1 \rightarrow 561$  ----- RD1/8PM  $\begin{smallmatrix} 5 & 6 & 1 \\ \hline \end{smallmatrix}$  J  
 $47k\Omega \rightarrow 47 \times 10^3 \rightarrow 473$  ----- RD1/4PS  $\begin{smallmatrix} 4 & 7 & 3 \\ \hline \end{smallmatrix}$  J  
 $0.5\Omega \rightarrow 0R5$  ----- RN2H  $\begin{smallmatrix} 0 & R & 5 \\ \hline \end{smallmatrix}$  K  
 $1\Omega \rightarrow 010$  ----- RS1P  $\begin{smallmatrix} 0 & 1 & 0 \\ \hline \end{smallmatrix}$  K  
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).  
 $5.62k\Omega \rightarrow 562 \times 10^1 \rightarrow 5621$  ----- RN1/4PC  $\begin{smallmatrix} 5 & 6 & 2 & 1 \\ \hline \end{smallmatrix}$  F
- Parts marked by  $\star$  are important parts which relate in X-rays radiation.  
If any of these parts need to be replaced, always replace with specified parts.
- Parts marked by x are important parts which relate in X-rays radiation. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself.  
If any part marked by x is replaced, there is danger of being exposed to X-rays.

| Mark              | No.                                | Description | Parts No. | Mark    | No.  | Description | Parts No. |
|-------------------|------------------------------------|-------------|-----------|---------|--|-------------|-----------|
| LIST OF ASSEMBLIS |                                    |             |           | NSP     | PRO FRONT ASSY (PRO-98 only)                 | AWV1493     |           |
|                   | U-COM-TUNER ASSY (83 family)       | AWV1483     |           |         | IR RECEIVER ASSY                             | AWX7012     |           |
|                   | U-COM-TUNER ASSY (SD-P5185-K)      | AWV1484     |           |         | PHOTO DIODE ASSY                             | AWZ7657     |           |
|                   | U-COM-TUNER ASSY (PRO-98)          | AWV1485     |           |         | RF AMP ASSY                                  | AWZ7658     |           |
| NSP               | CONVERGENCE ASSY                   | AWV1486     |           |         | FRONT CONTROL ASSY                           | AWZ6002     |           |
|                   | CONVERGENCE ASSY                   | AWZ5981     |           |         | FRONT INPUT ASSY                             | AWZ6003     |           |
|                   | R.CRT DRIVE ASSY                   | AWZ5982     |           |         | IR RECEIVER ASSY                             | AWZ6004     |           |
|                   | G.CRT DRIVE ASSY                   | AWZ5983     |           | NSP     | PRO S.G ASSY                                 | AWZ6005     |           |
|                   | POWER SW ASSY                      | AWZ5984     |           | NSP     | CENTER SP SW                                 | AWZ6006     |           |
|                   | B.CRT DRIVE ASSY                   | AWZ6009     |           |         | SUB RECEIVE ASSY                             | AWZ6007     |           |
|                   |                                    |             |           |         | EXT. SP ASSY                                 | AWZ6008     |           |
| NSP               | AV I/O ASSY (SD-P5185-K)           | AWV1488     |           | NSP     | P IN P ASSY (SD-P5185-K and 83 family)       | AWV1490     |           |
|                   | AV I/O ASSY                        | AWZ5985     |           | NSP     | P IN P ASSY (PRO-98)                         | AWV1492     |           |
|                   | Y/C SELECTOR ASSY                  | AWZ5987     |           |         | CONVERGENCE PD ASSY                          | AWZ5991     |           |
|                   | FRONT CONTROL ASSY                 | AWZ5990     |           |         | P IN P ASSY                                  | AWZ5992     |           |
|                   | P IN P SELECTOR ASSY               | AWZ5993     |           |         | A CONNECTOR ASSY                             | AWZ5994     |           |
|                   | SYSTEM CONTROL ASSY                | AWZ5998     |           |         | B CONNECTOR ASSY                             | AWZ5995     |           |
|                   | IR RECEIVE ASSY                    | AWX7012     |           |         | C CONNECTOR ASSY                             | AWZ5996     |           |
|                   | PHOTO DIODE ASSY                   | AWZ7657     |           |         | VM ASSY (PRO-98 only)                        | AWZ5997     |           |
|                   | RF AMP ASSY                        | AWZ7658     |           |         | RELAY DRIVE ASSY                             | AWZ5999     |           |
|                   |                                    |             |           |         | SUB CONVERGENCE ASSY                         | AWZ6001     |           |
| NSP               | AV I/O ASSY (83 family)            | AWV1487     |           | $\star$ | POWER SUPPLY ASSY (SD-P5185-K and 83 family) | AWV1499     |           |
| NSP               | AV I/O ASSY (PRO-98)               | AWV1489     |           | $\star$ | POWER SUPPLY ASSY (PRO-98)                   | AWV1500     |           |
|                   | AV I/O ASSY (83 family)            | AWZ5985     |           |         |  |             |           |
|                   | AV I/O ASSY (PRO-98)               | AWZ5986     |           |         |  |             |           |
|                   | Y/C SELECTOR ASSY (83 family)      | AWZ5987     |           |         |  |             |           |
|                   | Y/C SELECTOR ASSY (PRO-98)         | AWZ5988     |           |         |  |             |           |
|                   | FRONT CONTROL ASSY (83 famil only) | AWZ5989     |           |         |  |             |           |
|                   | P IN P SELECTOR ASSY               | AWZ5993     |           |         |  |             |           |
|                   | SYSTEM CONTROL ASSY (PRO-98 only)  | AWZ5998     |           |         |  |             |           |

| Mark  | No.                                     | Description  | Parts No. | Mark             | No.                               | Description | Parts No. |
|---|---|--------------|-----------|------------------|-----------------------------------|-------------|-----------|
| U-COM-TUNER ASSY (AWV1483, AWV1484 and AWV1485) |   |              |           |                  | D623 ,D624 ,D627 ,D630            | MTZJ15      |           |
| SEMICONDUCTORS                                  |   |              |           |                  | D632 -D634 ,D637 ,D640 ,D642      | MTZJ15      |           |
|   | IC901                                   | AT24C08-10PC |           |                  | D644 -D650 ,D655 ,D658 ,D662      | MTZJ15      |           |
|   | IC4901                                  | CXA1734S     |           |                  | D941 -D945                        | MTZJ15      |           |
|   | IC1401                                  | LA4280-P     |           |                  | D1411 ,D1412 ,D4815 ,D4817 ,D910  | MTZJ6.8     |           |
|   | IC904                                   | M66320P      |           |                  | D907 (AWV1483 only)               | MTZJ6.8     |           |
|   | IC605                                   | MC14011BCP   |           |                  | D916 ,D927 -D930                  | MTZJ6.8     |           |
|   | IC902                                   | MC34064P     |           |                  | D933 -D935 ,D938 ,D939            |             |           |
|   | IC604                                   | NJM7809FAS   |           |                  | (AWV1484 and AWV1485 only)        | MTZJ6.8     |           |
|   | IC602                                   | PA0030       |           |                  | D936 ,D937 ,D947                  | MTZJ6.8     |           |
|   | IC903                                   | PD5301A      |           |                  | D946 ,D973 (AWV1485 only)         | MTZJ6.8     |           |
|   | IC603                                   | TA8647S      |           |                  | D951 -D966 ,D968 ,D969            | MTZJ6.8     |           |
|   | IC601                                   | TA8801AN     |           |                  | D972 (AWV1484 and AWV1485 only)   | MTZJ6.8     |           |
|   | IC1003                                  | TC74HC4066AP |           |                  | D974 -D976 ,D985 ,D990            | MTZJ6.8     |           |
|   | IC1402                                  | UPC1853CT-01 |           |                  | D4818                             | RD12ESB3    |           |
|   | Q1407 ,Q1409 ,Q1417 ,Q4802 ,Q4807       | 2SA933S      |           |                  | D4810                             | RD33ESB3    |           |
|   | Q4811 ,Q4813 ,Q4902 ,Q609 ,Q610         | 2SA933S      |           |                  | D904 ,D931 ,D932                  | RD5.1ESB2   |           |
|   | Q612 ,Q614 ,Q625 ,Q627 ,Q629            | 2SA933S      |           |                  | D1401 ,D1426 ,D4809               | RD5.6ESB3   |           |
|   | Q631 ,Q632 ,Q650 ,Q655 -Q658            | 2SA933S      |           |                  | D1403 (AWV1484 and AWV1485 only)  | S5688G      |           |
|   | Q663 ,Q668 -Q672 ,Q676 -Q679            | 2SA933S      |           |                  | D671 -D673 ,D677 -D679            | S5688G      |           |
|   | Q901 ,Q915 ,Q927 -Q930                  | 2SA933S      |           |                  | D681 -D683                        | S5688G      |           |
|   | Q910 (AWV1483 only)                     | 2SA933S      |           | COILS            |                                   |             |           |
|   | Q924 ,Q926 (AWV1484 and AWV1485 only)   | 2SA933S      |           |                  | L1401 ,L1402 (1 $\mu$ H)          | ATH-133     |           |
|   | Q932 (AWV1484 and AWV1485 only)         | 2SA933S      |           |                  | DL601 (DELAY LINE)                | ATN1014     |           |
|   | Q903 ,Q905 ,Q912 (AWV1483 only)         | 2SC1740S     |           |                  | L602                              | LAU121K     |           |
|   | Q1402 ,Q1404 ,Q1406 ,Q1408              | 2SC1740S     |           |                  | L901                              | LAU180K     |           |
|   | Q1410 -Q1413 ,Q1415 ,Q4804 ,Q4806       | 2SC1740S     |           |                  | L4801 ,L4802 ,L4901               | LAU2R2K     |           |
|   | Q1414 ,Q1416 (AWV1484 and AWV1485 only) | 2SC1740S     |           |                  | L604 -L606                        | LAU4R7K     |           |
|   | Q4808 -Q4810 ,Q4814 ,Q4903 ,Q4904       | 2SC1740S     |           |                  | L4804                             | LAU560K     |           |
|   | Q601 -Q608 ,Q611 ,Q613 ,Q615            | 2SC1740S     |           |                  | L601                              | LAU680K     |           |
|   | Q618 -Q624 ,Q626 ,Q628 ,Q630            | 2SC1740S     |           | SWITCH AND RELAY |                                   |             |           |
|   | Q633 ,Q636 ,Q637 ,Q645 ,Q647            | 2SC1740S     |           |                  | RY1401 (AWV1484 and AWV1485 only) | ASR1040     |           |
|   | Q649 ,Q651 ,Q659 -Q662                  | 2SC1740S     |           |                  | S1401 (AWV1483 only)              | ASH1001     |           |
|   | Q664 -Q667 ,Q673 -Q675                  | 2SC1740S     |           | CAPACITORS       |                                   |             |           |
|   | Q680 -Q685 ,Q902 ,Q904                  | 2SC1740S     |           |                  | TC901                             | ACM-020     |           |
|   | Q906 -Q909 ,Q916 -Q921 ,Q923            | 2SC1740S     |           |                  | C4915 (3.3/50)                    | ACH1128     |           |
|   | Q925 (AWV1484 and AWV1485 only)         | 2SC1740S     |           |                  | C4918 (10/50)                     | ACH1129     |           |
|   | Q933 ,Q934                              | 2SC1740S     |           |                  | C662                              | CCCCH100D50 |           |
|   | Q4812                                   | 2SC2878      |           |                  | C923                              | CCCCH120J50 |           |
|   | Q1401                                   | 2SD1276A     |           |                  | C608 ,C617                        | CCCCH151J50 |           |
|   | Q4803                                   | 2SD438       |           |                  | C603                              | CCCCH820J50 |           |
|   | Q911                                    | 2SD880       |           |                  | C4801 ,C4809 -C4811 ,C4815        | CCCSL101J50 |           |
|   | Q652 -Q654                              | 2SK246       |           |                  | C929 ,C930                        | CCCSL101J50 |           |
|   | Q4801 ,Q4901 ,Q634 ,Q635 ,Q639          | XDC124ES     |           |                  | C615 ,C679 -C681                  | CCCSL121J50 |           |
|   | D1405 (LED : RED)                       | AEL1099      |           |                  | C1421 ,C1428 ,C682 -C684          | CCCSL151J50 |           |
|   | D1409 ,D1410 ,D1413 ,D1415 ,D1416       | HSS104-02    |           |                  | C614                              | CCCSL180J50 |           |
|   | D1418 -D1420 ,D1423 ,D1425              | HSS104-02    |           |                  | C910 ,C912                        | CCCSL221J50 |           |
|   | D1427 -D1429 ,D1434 -D1437              | HSS104-02    |           |                  | C612 ,C613                        | CCCSL390J50 |           |
|   | D1450 -D1457 ,D4801 -D4808 ,D4816       | HSS104-02    |           |                  | C4817                             | CCCSL470J50 |           |
|   | D601 -D610 ,D615 ,D620 ,D622            | HSS104-02    |           |                  | C623                              | CCCSL820J50 |           |
|   | D625 ,D626 ,D628 ,D629 ,D631            | HSS104-02    |           |                  | C668 ,C669 ,C675 -C677            | CEANP010M50 |           |
|   | D635 ,D636 ,D638 ,D639 ,D641            | HSS104-02    |           |                  | C625                              | CEANP4R7M50 |           |
|   | D643 ,D651 -D654 ,D659 -D661            | HSS104-02    |           |                  | C1472 ,C4904 ,C4917 ,C602 ,C604   | CEAS010M50  |           |
|   | D669 ,D670 ,D674 -D676 ,D680            | HSS104-02    |           |                  | C606 ,C611 ,C621 ,C622 ,C629      | CEAS010M50  |           |
|   | D684 -D687 ,D901 -D903 ,D905            | HSS104-02    |           |                  | C916 ,C919 ,C935 -C938            | CEAS010M50  |           |
|   | D906 ,D908 ,D909 (AWV1483 only)         | HSS104-02    |           |                  | C934 (AWV1484 and AWV1485 only)   | CEAS010M50  |           |
|   | D911 -D913 ,D918 -D925                  | HSS104-02    |           |                  | C909                              | CEAS0R1M50  |           |
|   | D914 ,D915 (AWV1485 only)               | HSS104-02    |           |                  | C1403 ,C4806 ,C4820 ,C4822 ,C4901 | CEAS100M50  |           |
|   | D949 ,D950 ,D971 ,D977 -D979            | HSS104-02    |           |                  | C620 ,C652 ,C656 ,C658 ,C661      | CEAS100M50  |           |
|   | D981 -D984                              | HSS104-02    |           |                  | C666 ,C670 ,C903                  | CEAS100M50  |           |
|   | D611 ,D688                              | HZS11A1L     |           |                  | C4808 ,C618 ,C917 ,C925           | CEAS101M10  |           |
|   | D4905 ,D4906 ,D616 -D619 ,D621          | MTZJ15       |           |                  | C4909 ,C631 ,C632 ,C637 ,C644     | CEAS101M25  |           |
|   |   |              |           |                  | C654 ,C667 ,C674                  | CEAS101M25  |           |
|   |   |              |           |                  | C4812 ,C628                       | CEAS102M16  |           |
|   |   |              |           |                  | C911                              | CEAS102M25  |           |

| Mark | No.                                | Description | Parts No.   | Mark              | No.                                  | Description | Parts No.     |
|------|------------------------------------|-------------|-------------|-------------------|--------------------------------------|-------------|---------------|
|      | C1471                              |             | CEAS220M50  |                   | C1465 ,C1467                         |             | CQMA682J50    |
|      | C1425                              |             | CEAS221M10  |                   | C1474                                |             | CQMA823J50    |
|      | C671 ,C685                         |             | CEAS221M16  | R E S I S T O R S |                                      |             |               |
|      | C1429 ,C1437                       |             | CEAS222M35  |                   | R1052                                |             | RA5T153J      |
|      | C1418 ,C1419 ,C1450 -C1452         |             | CEAS2R2M50  |                   | R503 -R505 ,R881 ,R882               |             | RD1/2PM100J   |
|      | C1457 -C1459 ,C636 ,C640 ,C664     |             | CEAS2R2M50  |                   | R952                                 |             | RD1/2PM122J   |
|      | C601 ,C609 ,C626                   |             | CEAS330M25  |                   | R1434 ,R1437                         |             | RD1/2PM152J   |
|      | C1422 ,C1427                       |             | CEAS330M35  |                   | R880                                 |             | RD1/2PM270J   |
|      | C933 (AWV1484 and AWV1485 only)    |             | CEAS330M35  |                   | R1405 ,R4810 ,R896 -R898             |             | RD1/2PM271J   |
|      | C4826                              |             | CEAS331M16  |                   | R4811 ,R4846                         |             | RD1/2PM681J   |
|      | C939 (AWV1484 and AWV1485 only)    |             | CEAS331M50  |                   | R1435 ,R1440                         |             | RD1/4PMFL100J |
|      | C1469 ,C1470                       |             | CEAS3R3M50  |                   | R509                                 |             | RD1/4PMFL101J |
|      | C908 (AWV1483 and AWV1484 only)    |             | CEAS3R3M50  |                   | R1406 ,R4840                         |             | RD1/4PMFL220J |
|      | C908 (AWV1485 only)                |             | CEAS4R7M50  |                   | R1436 ,R1438                         |             | RD1/4PMFL2R2J |
|      | C1414 ,C4805 ,C4824 ,C4827 ,C4828  |             | CEAS470M25  |                   | R1100 ,R508 ,R686 ,R945              |             | RD1/4PMFL3R9J |
|      | C616 ,C627 ,C673 ,C686 ,C906       |             | CEAS470M25  |                   | R694                                 |             | RN1/4PC1001F  |
|      | C927 ,C932                         |             | CEAS470M25  |                   | R672 ,R681 ,R695                     |             | RN1/4PC1002F  |
|      | C1423                              |             | CEAS470M50  |                   | R673 ,R674                           |             | RN1/4PC1202F  |
|      | C630                               |             | CEAS471M10  |                   | R693                                 |             | RN1/4PC2002F  |
|      | C1401 ,C1436                       |             | CEAS471M50  |                   | R682                                 |             | RN1/4PC2402F  |
|      | C4902 ,C4906 -C4908 ,C4911 ,C4912  |             | CEAS4R7M50  |                   | R631                                 |             | RN1/4PC2701F  |
|      | C4916 ,C4921 ,C4922 ,C605 ,C625    |             | CEAS4R7M50  |                   | R1402                                |             | RN1/4PC3002F  |
|      | C643 ,C648                         |             | CEAS4R7M50  |                   | R4908                                |             | RN1/4PC4302F  |
|      | C941 (AWV1484 and AWV1485 only)    |             | CEASR22M50  |                   | R670                                 |             | RN1/4PC4701F  |
|      | C4905 ,C610                        |             | CEASR47M50  |                   | R632                                 |             | RN1/4PC5601F  |
|      | C1424 ,C1426                       |             | CEHAQ100M50 |                   | R1401                                |             | RN1/4PC6201F  |
|      | C641 ,C645                         |             | CFTXA104J50 |                   | R4903                                |             | RN1/4PC6202F  |
|      | C1430 ,C1438                       |             | CFTXA124J50 |                   | R721                                 |             | RS2LMF3R3J    |
|      | C4903                              |             | CFTXA224J50 |                   | R687                                 |             | RS2LMF4R7J    |
|      | C1460 ,C1461 ,C4818 ,C921          |             | CKCYB102K50 |                   | R4809                                |             | RS2MMF220J    |
|      | C940 (AWV1484 and AWV1485 only)    |             | CKCYB102K50 |                   | VR601 (100Ω)                         |             | ACP1037       |
|      | C902                               |             | CKCYB103K50 |                   | VR602 (220Ω)                         |             | ACP1038       |
|      | C907 ,C913 ,C918 ,C920 ,C926 ,C931 |             | CKCYB103K50 |                   | VR4801,VR603 (4.7k)                  |             | ACP1042       |
|      | (AWV1483 only)                     |             | CKCYB103K50 | O T H E R S       | Other Resistors                      |             | RD1/8PM□□□J   |
|      | C907 ,C913 ,C918 ,C920 ,C926 ,C931 |             | CKCYF103Z50 |                   | TV FRONT-END SYSTEM UNIT             |             | AXF1077       |
|      | (AWV1484 and AWV1485 only)         |             | CKCYB103K50 |                   | RF SWITCH                            |             | AXF1078       |
|      | C915 (AWV1485 only)                |             | CKCYB122K50 |                   | SPEAKER TERMINAL 4-P                 |             |               |
|      | C928                               |             | CKCYB152K50 |                   | (AWV1484 only)                       |             | AKE1057       |
|      | C1416 ,C1417                       |             | CKCYB222K50 |                   | PLATE SPRING                         |             | ANG1569       |
|      | C4919 ,C4920                       |             | CKCYB391K50 |                   | HEAT SINK                            |             | ANH-575       |
|      | C678                               |             | CKCYB471K50 |                   | HEAT SINK                            |             | ANH1150       |
|      | C4829                              |             | CKCYB561K50 |                   | HEAT SINK                            |             | ANH1506       |
|      | C1402                              |             | CKCYB472K50 |                   | SHIELD PLATE                         |             | ANK1500       |
|      | C904 (AWV1483 only)                |             | CKCYF103Z50 |                   | X901 CERAMIC RESONATOR (8.00MHz)     |             | ASS1015       |
|      | C1404 ,C1439 ,C4802 ,C4804 ,C4813  |             | CKCYF103Z50 |                   | X601 CERAMIC RESONATOR (503kHz)      |             | ASS1019       |
|      | C4823 ,C4825 ,C4910 ,C642 ,C647    |             | CKCYF103Z50 |                   | X602 CRYSTAL RESONATOR (3.579545MHz) |             | ASS1091       |
|      | C655 ,C659 ,C914                   |             | CKCYF103Z50 |                   | SCREW                                |             | BBZ30P080FCU  |
|      | C905 (AWV1483 only)                |             | CKCYF103Z50 |                   | CN903 11P PLUG                       |             | KM200IA11     |
|      | C918 ,C920 ,C926 ,C931             |             | CKCYF103Z50 |                   | CN1402 11P PLUG (AWV1485 only)       |             | KM200IA11     |
|      | C1413 ,C1432 ,C1433 ,C1435 ,C619   |             | CKCYF473Z50 |                   | CN901 16P PLUG (AWV1484 and          |             |               |
|      | C624 ,C633 ,C639 ,C646 ,C672       |             | CKCYF473Z50 |                   | AWV1485 only)                        |             | KM200IA16     |
|      | C687 ,C924                         |             | CKCYF473Z50 |                   | CN604 6P PLUG (AWV1485 only)         |             | KM200IA6      |
|      | C901 (AWV1483 only)                |             | CKCYF473Z50 |                   | CN603 8P PLUG                        |             | KM200IA8      |
|      | C634                               |             | CKCYX104M25 |                   | CN601 PLUG 11-P                      |             | KM250MA11     |
|      | C1464                              |             | CQMA102J50  |                   | CN906 PLUG 13-P                      |             | KM250MA13B    |
|      | C638                               |             | CQMA103J50  |                   | CN606 PLUG 4-P                       |             | KM250MA4      |
|      | C1466 ,C1468 ,C1475                |             | CQMA104J50  |                   | CN1401 PLUG 8-P                      |             | KM250MA8      |
|      | C650                               |             | CQMA124J50  |                   | CN902 PLUG 8-P (AWV1483 only)        |             | KM250MA8B     |
|      | C665                               |             | CQMA183J50  |                   | PIN JACK(1P) (AWV1485 only)          |             | AKB1111       |
|      | C1476                              |             | CQMA222J50  |                   | CN1403 PIN JACK(2P) (AWV1484 only)   |             | AKB1146       |
|      | C1462 ,C1463 ,C653 ,C657           |             | CQMA223J50  |                   | CN1403 PIN JACK(2P) (AWV1485 only)   |             | AKB1151       |
|      | C4913                              |             | CQMA272J50  |                   | CN910 JACK (AWV1483 only)            |             | AKN-209       |
|      | C663                               |             | CQMA472J50  |                   | CN905 PLUG 8-P                       |             | KM250MA8R     |
|      | C4914 ,C660 ,C901                  |             | CQMA473J50  |                   |                                      |             |               |
|      | C1473 ,C607                        |             | CQMA681J50  |                   |                                      |             |               |

| Mark | No.          | Description | Parts No.    |
|------|--------------|-------------|--------------|
|      | CN605        | PLUG 9-P    | KM250MA9R    |
|      | CN4801,CN602 | 10P SOCKET  | KP250NA10    |
|      | CN904        | SOCKET 7-P  | KP250NA7     |
|      | SCREW        |             | PBZ30P080FMC |

### CONVERGENCE ASSY (AWZ5981)

#### SEMICONDUCTORS

|   |                                    |             |
|---|------------------------------------|-------------|
|   | IC2316                             | M5228P      |
|   | IC2312,IC2313,IC2315,IC2319-IC2321 | NJM4558LD   |
|   | IC2603                             | NJM4558LD   |
|   | IC2302                             | NJM78M05FAS |
|   | IC2301                             | NJM79M05FA  |
|   | IC2303,IC2304                      | PA0053B     |
|   | IC2305,IC2306                      | PM0002B     |
| △ | IC2601                             | STK4274     |
|   | IC2307                             | STK4277-SL  |
|   | IC2311                             | TC4053BP    |
|   | IC2310,IC2602                      | TC4066BP    |
|   | Q2301                              | 2SA933S     |
|   | Q2302-Q2306,Q2602                  | 2SC1740S    |
|   | D2301,D2302,D2309,D2313            | HSS104-02   |
|   | D2315-D2317                        | HSS104-02   |
|   | D2310-D2312,D2319,D2325-D2330      | MTZJ12      |
|   | D2333,D2334,D2336,D2340            | MTZJ12      |
|   | D2342,D2343,D2346,D2348,D2350      | MTZJ12      |
|   | D2352,D2355,D2357-D2359,D2362      | MTZJ12      |
|   | D2366,D2370-D2380,D2382-D2388      | MTZJ12      |
|   | D2394-D2397,D2399-D2406            | MTZJ12      |
|   | D2601-D2605,D2611-D2616            | MTZJ12      |
|   | D2305-D2308,D2354                  | MTZJ6.8     |
|   | D2398                              | RD20ESB     |
|   | D2314                              | RD4.7ESB2   |
|   | D2389-D2393,D2407-D2411            | S5688G      |
|   | D2607-D2610                        | S5688G      |

#### CAPACITORS

|  |                               |             |
|--|-------------------------------|-------------|
|  | C2346,C2347,C2382,C2383       | CCCCH101J50 |
|  | C2609                         | CCCSL271J50 |
|  | C2348                         | CCMSL470J50 |
|  | C2308,C2339-C2341,C2345,C2375 | CEAS010M50  |
|  | C2386                         | CEAS010M50  |
|  | C2381,C2432,C2611             | CEAS100M50  |
|  | C2303-C2305,C2313,C2322,C2323 | CEAS101M10  |
|  | C2344,C2349,C2355,C2356       | CEAS101M10  |
|  | C2393,C2394,C2396,C2397,C2424 | CEAS101M10  |
|  | C2426,C2615,C2621,C2622       | CEAS101M10  |
|  | C2307,C2312,C2366,C2372       | CEAS221M10  |
|  | C2376,C2377                   | CEAS330M35  |
|  | C2320,C2321,C2330,C2357,C2358 | CEAS331M6   |
|  | C2367,C2371                   | CEAS331M6   |
|  | C2378                         | CEAS470M25  |
|  | C2379                         | CEAS47M50   |
|  | C2342                         | CEASR47M50  |
|  | C2301,C2302                   | CEHAQ330M35 |
|  | C2405-C2408,C2601-C2604       | CEHAQ471M35 |
|  | C2359,C2374                   | CFTYA224J50 |
|  | C2610                         | CKCYB681K50 |
|  | C2306,C2309,C2314-C2319       | CKCYF473Z50 |
|  | C2324,C2325,C2327-C2329       | CKCYF473Z50 |
|  | C2331-C2333,C2336,C2337       | CKCYF473Z50 |
|  | C2350-C2353,C2361,C2362       | CKCYF473Z50 |
|  | C2364,C2365,C2368-C2370,C2385 | CKCYF473Z50 |
|  | C2387-C2392,C2409-C2412,C2425 | CKCYF473Z50 |

| Mark | No.                     | Description | Parts No.   |
|------|-------------------------|-------------|-------------|
|      | C2427,C2428,C2605-C2608 |             | CKCYF473Z50 |
|      | C2617-C2620             |             | CKCYF473Z50 |
|      | C2326                   |             | CQMA102J50  |
|      | C2310                   |             | CQMA103J50  |
|      | C2380                   |             | CQMA104J50  |
|      | C2311                   |             | CQMA182J50  |
|      | C2338,C2343             |             | CQMA471J50  |

#### RESISTORS

|   |                                    |               |
|---|------------------------------------|---------------|
|   | R2563                              | RD1/2PM271J   |
|   | R2621-R2623                        | RD1/2PM470J   |
|   | R2518,R2520,R2603,R2604            | RD1/2PMFL220J |
|   | R2610                              | RN1/4PC1001F  |
| △ | R2301,R2302                        | RS1LMF8R2J    |
| △ | R2511,R2519                        | RS2LMFR47J    |
| △ | R2613                              | RS3LMF010J    |
| △ | R2532,R2541                        | RS3LMF3R3J    |
| △ | R2334,R2384,R2482,R2486,R2531      | RS3LMF6R8J    |
| △ | R2536,R2539,R2540,R2543,R2547      | RS3LMF6R8J    |
| △ | R2601,R2602,R2612                  | RS3LMF6R8J    |
|   | VR2301-VR2303,VR2310-VR2312 (4.7k) | ACP1042       |
|   | VR2304,VR2313 (10k)                | ACP1043       |
|   | VR2305,VR2307,VR2308 (47k)         | ACP1045       |
|   | VR2315,VR2602 (47k)                | ACP1045       |
|   | VR2306,VR2314 (220k)               | ACP1047       |
|   | VR2601                             | VRTS6VS471    |
|   | Other Resistors                    | RD1/8PM□□□J   |

#### OTHERS

|  |                        |              |
|--|------------------------|--------------|
|  | BINDER                 | AEP-215      |
|  | HEAT SINK M            | ANH-697      |
|  | HEAT SINK              | ANH1438      |
|  | HEAT SINK              | ANH1482      |
|  | SHIELD PLATE           | ANK1500      |
|  | CN2601 5P PLUG         | KM200IA5     |
|  | CN2308 6P PLUG         | KM200IA6     |
|  | CN2303 PLUG 12-P       | KM250MA13    |
|  | CN2301,CN2306 PLUG 6-P | KM250MA6     |
|  | CN2307 PLUG 6-P        | KM250MA6B    |
|  | CN2305 PLUG 6-P        | KM250MA6R    |
|  | CN2302 PLUG 8-P        | KM250MA8R    |
|  | SCREW                  | ABA1056      |
|  | SCREW                  | BBZ30P080FCU |
|  | SCREW                  | BBZ30P080FZK |
|  | SCREW                  | PBZ30P080FMC |

### R.CRT DRIVE ASSY (AWZ5982)

#### SEMICONDUCTORS

|  |       |           |
|--|-------|-----------|
|  | Q2701 | 2SC4001   |
|  | D2701 | HSS104-02 |

#### COILS

|  |             |         |
|--|-------------|---------|
|  | L2703       | LAU101K |
|  | L2701,L2702 | LAU470K |

#### CAPACITORS

|  |                    |             |
|--|--------------------|-------------|
|  | C2704 (1000p / 2k) | ACG1001     |
|  | C2701              | CEAS101M10  |
|  | C2702              | CKCYB681K50 |

#### RESISTORS

|  |                 |             |
|--|-----------------|-------------|
|  | R2705 (47,1/2W) | ACN-225     |
|  | R2702 (1k,1/2W) | ACN1006     |
|  | R2703,R2704     | RS3LMF332J  |
|  | Other Resistors | RD1/8PM□□□J |



| Mark   | No. | Description     | Parts No.    |
|--------|-----|-----------------|--------------|
| OTHERS |     |                 |              |
| △      |     | CRT SOCKET      | AKG1004      |
|        |     | HEAT SINK M3    | ANH1409      |
|        |     | CN2702 PLUG 3-P | KM250MA3R    |
|        |     | SCREW           | PMB30P100FMC |

### G.CRT DRIVE ASSY (AWZ5983)

|                |                    |                          |              |
|----------------|--------------------|--------------------------|--------------|
| SEMICONDUCTORS |                    |                          |              |
|                | Q2731              |                          | 2SC4001      |
|                | D2731              |                          | HSS104-02    |
| COILS          |                    |                          |              |
|                | L2733              |                          | LAU101K      |
|                | L2731, L2732       |                          | LAU470K      |
| CAPACITORS     |                    |                          |              |
|                | C2734 (1000p / 2k) |                          | ACG1001      |
|                | C2733 (4.7 / 250)  |                          | ACH-378      |
|                | C2731              |                          | CEAS101M10   |
|                | C2732              |                          | CKCYB681K50  |
| RESISTORS      |                    |                          |              |
|                | R2735 (47,1/2W)    |                          | ACN-225      |
|                | R2732 (1k,1/2W)    |                          | ACN1006      |
|                | R2733, R2734       |                          | RS3LMF332J   |
|                | Other Resistors    |                          | RD1/8PM□□□J  |
| OTHERS         |                    |                          |              |
| △              |                    | J2, J3 LEAD WITH HOUSING | ADX1508      |
|                |                    | CRT SOCKET               | AKG1004      |
|                |                    | HEAT SINK M3             | ANH1409      |
|                |                    | CN2732 PLUG 3-P          | KM250MA3     |
|                |                    | SCREW                    | PMB30P100FMC |

### POWER SW ASSY (AWZ5984)

|        |                 |  |         |
|--------|-----------------|--|---------|
| SWITCH |                 |  |         |
|        | S3591           |  | ASG1006 |
| OTHERS |                 |  |         |
|        | CN3591 PLUG 2-P |  | AKM-089 |

### B.CRT DRIVE ASSY (AWZ6009)

|                |                    |                 |              |
|----------------|--------------------|-----------------|--------------|
| SEMICONDUCTORS |                    |                 |              |
|                | Q2761              |                 | 2SC4001      |
|                | D2761              |                 | HSS104-02    |
| COILS          |                    |                 |              |
|                | L2763              |                 | LAU101K      |
|                | L2761, L2762       |                 | LAU470K      |
| CAPACITORS     |                    |                 |              |
|                | C2764 (1000p / 2k) |                 | ACG1001      |
|                | C2761              |                 | CEAS101M10   |
|                | C2762              |                 | CKCYB681K50  |
| RESISTORS      |                    |                 |              |
|                | R2765 (47,1/2W)    |                 | ACN-225      |
|                | R2762 (1k,1/2W)    |                 | ACN1006      |
|                | R2763, R2764       |                 | RS3LMF332J   |
|                | Other Resistors    |                 | RD1/8PM□□□J  |
| OTHERS         |                    |                 |              |
| △              |                    | CRT SOCKET      | AKG1004      |
|                |                    | HEAT SINK M3    | ANH1409      |
|                |                    | CN2762 PLUG 3-P | KM250MA3B    |
|                |                    | CN2763 PLUG 5-P | KM250MA5     |
|                |                    | SCREW           | PMB30P100FMC |

### AV I/O ASS'Y (AWZ5985 and AWZ5986)

|                |                                     |  |              |
|----------------|-------------------------------------|--|--------------|
| SEMICONDUCTORS |                                     |  |              |
|                | IC2251                              |  | M66320P      |
|                | IC1604                              |  | NJM7805FAS   |
|                | IC1605                              |  | NJM79M05FA   |
|                | IC1731                              |  | PD5300A      |
|                | IC1804                              |  | TC4013BP     |
|                | IC1802                              |  | TC4040BP     |
|                | IC1601-IC1603                       |  | TC4051BP     |
|                | IC1803                              |  | TC74HC04AP   |
|                | IC1801                              |  | TC74HC4538AP |
|                | Q1604, Q1607, Q1608, Q1616, Q1621   |  | 2SA933S      |
|                | Q1806, Q1853, Q1857 - Q1859         |  | 2SA933S      |
|                | Q1862, Q1863, Q1865 - Q1869, Q1875  |  | 2SA933S      |
|                | Q1601 - Q1603, Q1605, Q1606         |  | 2SC1740S     |
|                | Q1609 - Q1615, Q1617 - Q1620        |  | 2SC1740S     |
|                | Q1622 - Q1627, Q1731, Q1801, Q1802  |  | 2SC1740S     |
|                | Q1807, Q1860, Q1861, Q1864          |  | 2SC1740S     |
|                | Q1870 - Q1873, Q1878, Q1881 - Q1888 |  | 2SC1740S     |
|                | Q2251, Q2252                        |  | 2SC1740S     |
|                | Q1856                               |  | 2SK246       |
|                | Q1805                               |  | RN1201       |
|                | Q1735                               |  | XDC143ES     |
|                | D1601 - D1603, D1605, D1732         |  | HSS104-02    |
|                | D1734 - D1740, D1744, D1745         |  | HSS104-02    |
|                | D1748 - D1756, D1803 - D1823        |  | HSS104-02    |
|                | D1830 - D1837, D1847, D1851, D1852  |  | HSS104-02    |
|                | D1854 - D1856, D1859 - D1862        |  | HSS104-02    |
|                | D1731, D1733, D1741 - D1743         |  | MTZJ6.8      |
|                | D1746, D1747, D1801, D1802          |  | MTZJ6.8      |
|                | D1824 - D1827, D2251 - D2259        |  | MTZJ6.8      |
|                | D2263, D2264                        |  | MTZJ6.8      |
|                | D1604                               |  | RD3.6ESB1    |
| COILS          |                                     |  |              |
|                | L1601 (1000 μH)                     |  | ATH1046      |
|                | L2251                               |  | LAU220J      |
|                | L1731                               |  | LAU2R2K      |
|                | DL1851 DELAY LINE                   |  | ATN1014      |
| CAPACITORS     |                                     |  |              |
|                | C1805                               |  | CCCCH151J50  |
|                | C2254, C2255                        |  | CCCSL101J50  |
|                | C1849                               |  | CCCSL270J50  |
|                | C1855                               |  | CEANP010M50  |
|                | C1734, C1739                        |  | CEAS0R1M50   |
|                | C1626, C1635, C1646, C1652          |  | CEAS100M50   |
|                | C1602, C1606, C1610, C1614 - C1616  |  | CEAS101M10   |
|                | C1618, C1623, C1641, C1643, C1644   |  | CEAS101M10   |
|                | C1649, C1736                        |  | CEAS101M10   |
|                | C1603, C1609, C1642, C1854, C1862   |  | CEAS101M25   |
|                | C1601, C1608                        |  | CEAS102M10   |
|                | C1648                               |  | CEAS220M50   |
|                | C1853                               |  | CEAS221M10   |
|                | C1612                               |  | CEAS221M16   |
|                | C1620, C1625, C1627, C1637 - C1640  |  | CEAS2R2M50   |
|                | C1650, C1651                        |  | CEAS2R2M50   |
|                | C1604, C1858, C1876                 |  | CEAS330M35   |
|                | C1851                               |  | CEAS331M16   |
|                | C1802, C1804, C1807, C1810, C1852   |  | CEAS470M25   |
|                | C2251                               |  | CEAS470M25   |
|                | C1628, C1629, C1633                 |  | CEAS471M10   |
|                | C1634                               |  | CEHAQ101M10  |
|                | C1619                               |  | CEHAQ2R2M50  |
|                | C1740, C1741                        |  | CKCYB102K50  |

| Mark                     | No.                                 | Description | Parts No.       |
|--------------------------|-------------------------------------|-------------|-----------------|
|                          | C1645 ,C1647                        |             | CKCYB331K50     |
|                          | C2253                               |             | CKCYB471K50     |
|                          | C1738                               |             | CKCYB561K50     |
|                          | C1605 ,C1607 ,C1611 ,C1613 ,C1617   |             | CKCYF103Z50     |
|                          | C1621 ,C1622 ,C1624 ,C2252          |             | CKCYF103Z50     |
|                          | C1630 ,C1632 ,C1636 ,C1737          |             | CKCYF473Z50     |
|                          | C1801 ,C1803 ,C1806 ,C1809 ,C1814   |             | CKDYF473Z50     |
|                          | C1733                               |             | CQMA102J50      |
|                          | C1808                               |             | CQMA471J50      |
|                          | C1813                               |             | CQPA362J100     |
| <b>R E S I S T O R S</b> |                                     |             |                 |
|                          | R1763                               |             | RA8T103J        |
|                          | R1761 ,R1762                        |             | RA9T103J        |
|                          | R1816                               |             | RD1/2PM102J     |
|                          | R1634 ,R1724                        |             | RD1/2PM221J     |
|                          | R1711                               |             | RD1/2PMFL2R2J   |
|                          | R1651 ,R1690 ,R1718                 |             | RD1/2PMFL3R9J   |
|                          | R1652 ,R1689 ,R1719                 |             | RD1/2PMFL6R8J   |
|                          | R1691                               |             | RD1/4PM221J     |
|                          | R1602 ,R1606                        |             | RD1/4PM750J     |
|                          | R1851                               |             | RD1/4PMFL3R9J   |
|                          | R1806                               |             | RN1/4PC1202F    |
|                          | R1803                               |             | RN1/4PC5102F    |
|                          | R1668                               |             | RS1LMF3R9J      |
|                          | R1697                               |             | RS3LMF3R3J      |
|                          | R1704                               |             | RS3LMF6R8J      |
|                          | VR1812                              |             | VRTB6VS104      |
|                          | VR1801                              |             | VRTS6VS103      |
|                          | Other Resistors                     |             | RD1/8PM□□□J     |
| <b>O T H E R S</b>       |                                     |             |                 |
|                          | PIN JACK(12P) (AWZ5986 only)        |             | AKB1114         |
|                          | PIN JACK(3P) (AWZ5986 only)         |             | AKB1137         |
|                          | CABLE HOLDER                        |             | AKT1011         |
|                          | HEAT SINK                           |             | ANH-880         |
|                          | X1732 CERAMIC RESONATOR (8.00MHz)   |             | ASS1015         |
|                          | X1731 CERAMIC RESONATOR (12MHz)     |             | ASS1062         |
|                          | J1001 11P-HOUSING WIRE              |             | ADX2197         |
|                          | J1002 8P-HOUSING WIRE               |             | ADX2198         |
|                          | J1 JUMPER WIRE                      |             | D15A13-150-2651 |
|                          | J2 JUMPER WIRE                      |             | DHH03-150-2651  |
|                          | CN1608 PIN JACK(12P) (AWZ5985 only) |             | AKB1094         |
|                          | CN1609 PIN JACK(3P) (AWZ5985 only)  |             | AKB1102         |
|                          | CN1601,CN1602 PLUG 10-P             |             | KM200IA10       |
|                          | CN1607 PLUG 13-P                    |             | KM200IA13       |
|                          | CN1606 PLUG 5-P                     |             | KM200IA5        |
|                          | CN1612 PLUG 3-P (AWZ5986 only)      |             | KM250MA3        |
|                          | CN1603 PLUG 9-P                     |             | KM250MA9B       |
|                          | CN1605,CN1851 PLUG 10-P             |             | KM250NA10L      |
|                          | CN1604 PLUG 7-P                     |             | KM250NA7L       |
|                          | SCREW                               |             | PBZ30P080FMC    |

**Y/C SELECTOR ASSY (AWZ5987 and AWZ5988)**

|                                    |                            |  |            |
|------------------------------------|----------------------------|--|------------|
| <b>S E M I C O N D U C T O R S</b> |                            |  |            |
|                                    | IC2151                     |  | TC4052BP   |
|                                    | Q2163 ,Q2164               |  | 2SA933S    |
|                                    | Q2151 -Q2156 ,Q2161 ,Q2162 |  | 2SC1740S   |
|                                    | Q2165 ,Q2166               |  | 2SC1740S   |
|                                    | D2151 ,D2152               |  | HSS104-02  |
|                                    | D2153 -D2155               |  | MTZJ12     |
| <b>C A P A C I T O R S</b>         |                            |  |            |
|                                    | C2151 ,C2154 ,C2158        |  | CEAS101M10 |
|                                    | C2164                      |  | CEAS101M25 |

|                          |                                   |             |             |
|--------------------------|-----------------------------------|-------------|-------------|
| Mark                     | No.                               | Description | Parts No.   |
|                          | C2152 ,C2153 ,C2156 ,C2161 ,C2162 |             | CKCYF103Z50 |
| <b>R E S I S T O R S</b> |                                   |             |             |
|                          | R2196 ,R2197                      |             | RD1/2PM821J |
|                          | Other Resistors                   |             | RD1/8PM□□□J |
| <b>O T H E R S</b>       |                                   |             |             |
|                          | CN2151 SOCKET (AWZ5987)           |             | AKP1065     |
|                          | CN2151 SOCKET (AWZ598)            |             | AKP1066     |
|                          | CABLE HOLDER                      |             | AKT1011     |

**FRONT CONTROL ASSY (AWZ5989 and AWZ5990)**

|                                    |                                    |  |               |
|------------------------------------|------------------------------------|--|---------------|
| <b>S E M I C O N D U C T O R S</b> |                                    |  |               |
|                                    | IC1301                             |  | M5218AL       |
|                                    | IC1302                             |  | M5223P        |
|                                    | IC4101                             |  | PD5136        |
|                                    | Q4152                              |  | 2SA933S       |
|                                    | Q1306 ,Q4101 -Q4103                |  | 2SC1740S      |
|                                    | D4151 (LED : RED and GREEN)        |  | AEL1152       |
|                                    | D4110 ,D4111 ,D4152 ,D4153         |  | HSS104-02     |
|                                    | D4103 ,D4104                       |  | MTZJ15        |
|                                    | D4109                              |  | MTZJ3.0       |
| <b>C O I L</b>                     |                                    |  |               |
|                                    | L1301 (AWZ5990 only)               |  | LAU221K       |
| <b>S W I T C H E S</b>             |                                    |  |               |
|                                    | S4101 -S4112                       |  | ASG1034       |
| <b>C A P A C I T O R S</b>         |                                    |  |               |
|                                    | C4108 ,C4109                       |  | CCCSL221J50   |
|                                    | C4152 (AWZ5989 only)               |  | CCCSL221J50   |
|                                    | C4113                              |  | CEAS101M10    |
|                                    | C1304 (AWZ5990 only)               |  | CEAS221M10    |
|                                    | C4112                              |  | CEAS2R2M50    |
|                                    | C4101 -C4103 ,C4106 ,C4107         |  | CEAS470M25    |
|                                    | C1301 -C1303 ,C1305 (AWZ5990 only) |  | CKCYB103K50   |
|                                    | C4114                              |  | CKCYB472K50   |
|                                    | C4105 ,C4111 ,C4115                |  | CKCYF473Z50   |
|                                    | C1306 (AWZ5990 only)               |  | CKCYX104M16   |
|                                    | C4110                              |  | CKCYX104M16   |
| <b>R E S I S T O R S</b>           |                                    |  |               |
|                                    | R4157                              |  | RD1/2PM561J   |
|                                    | R4139                              |  | RD1/4PMFL101J |
|                                    | R1321                              |  | RD1/4PMFL470J |
|                                    | Other Resistors                    |  | RD1/8PM□□□J   |
| <b>O T H E R S</b>                 |                                    |  |               |
|                                    | SHIELD CASE A(MET) (AWZ5990 only)  |  | ANK7009       |
|                                    | SHIELD CASE B(MET) (AWZ5990 only)  |  | ANK7010       |
|                                    | CN4103 PIN JACK(1P)                |  | AKB1055       |
|                                    | CN4101 PIN JACK(1P)                |  | AKB1056       |
|                                    | CN4102 PIN JACK(1P)                |  | AKB1057       |
|                                    | CN4104 SOCKET                      |  | AKP1081       |
|                                    | X4101 CERAMIC OSCILLATOR (480kHz)  |  | ASS1043       |
|                                    | CN1301 PLUG 3-P                    |  | KM250MA3      |
|                                    | CN4106 PLUG 5-P                    |  | KM250MA5B     |
|                                    | CN4105 PLUG 9-P                    |  | KM250MA9      |

**P I N P SELECTOR ASSY (AWZ5993)**

|                                    |              |  |           |
|------------------------------------|--------------|--|-----------|
| <b>S E M I C O N D U C T O R S</b> |              |  |           |
|                                    | IC2201       |  | TC4051BP  |
|                                    | Q2207        |  | 2SA933S   |
|                                    | Q2201 -Q2206 |  | 2SC1740S  |
|                                    | D2201        |  | HSS104-02 |

| Mark              | No.                        | Description | Parts No.   |
|-------------------|----------------------------|-------------|-------------|
| <b>CAPACITORS</b> |                            |             |             |
|                   | C2201 ,C2203 ,C2205        |             | CEAS101M10  |
|                   | C2202 ,C2204 ,C2206 ,C2207 |             | CKCYF103Z50 |
| <b>RESISTORS</b>  |                            |             |             |
|                   | All Resistors              |             | RD1/8PM□□□J |
| <b>OTHERS</b>     |                            |             |             |
|                   | CN2201,CN2202 10P SOCKET   |             | KP200IA10L  |

**SYSTEM CONTROL ASSY (AWZ5998)**

|                       |                                   |  |               |
|-----------------------|-----------------------------------|--|---------------|
| <b>SEMICONDUCTORS</b> |                                   |  |               |
|                       | IC3403                            |  | LH5268AN1TLL  |
|                       | IC3402                            |  | PD5320A       |
|                       | IC3404                            |  | TC74HC02AP    |
|                       | IC3401                            |  | TC74HC123AP   |
|                       | Q3409                             |  | 2SA1515       |
|                       | Q3403 ,Q3411                      |  | 2SA933S       |
|                       | Q3401 ,Q3402 ,Q3404 -Q3408        |  | 2SC1740S      |
|                       | Q3412 ,Q3413                      |  | 2SC1740S      |
|                       | Q3410 ,Q3414                      |  | XDA124ES      |
|                       | Q3415                             |  | XDC124ES      |
|                       | D3402 -D3407 ,D3413 -D3421        |  | HSS104-02     |
|                       | D3423 -D3429                      |  | HSS104-02     |
|                       | D3401 ,D3408 -D3411               |  | MTZJ6.8       |
|                       | D3412                             |  | RD3.0ESB1     |
| <b>COIL</b>           |                                   |  |               |
|                       | L3401                             |  | LAU220K       |
| <b>CAPACITORS</b>     |                                   |  |               |
|                       | C3408 (47mF/5.5)                  |  | ACH1246       |
|                       | C3416                             |  | CEAS100M50    |
|                       | C3407                             |  | CEAS101M10    |
|                       | C3413                             |  | CEAS101M50    |
|                       | C3417                             |  | CEAS2R2M50    |
|                       | C3404 ,C3409 ,C3414 ,C3419        |  | CEAS470M25    |
|                       | C3401 ,C3403                      |  | CKCYB102K50   |
|                       | C3402 ,C3405 ,C3406 ,C3411 ,C3412 |  | CKCYF103Z50   |
|                       | C3415 ,C3418                      |  | CKCYF103Z50   |
|                       | C3410                             |  | CKCYF473Z50   |
| <b>RESISTORS</b>      |                                   |  |               |
|                       | R3419                             |  | RD1/2PMFL220J |
|                       | Other Resistors                   |  | RD1/8PM□□□J   |
| <b>OTHERS</b>         |                                   |  |               |
|                       | X3401 CERAMIC RESONATOR (4.00MHz) |  | ASS1025       |
|                       | JACK                              |  | BKN1005       |
|                       | CN3405,CN3406 JACK                |  | AKN-207       |
|                       | CN3403 JACK                       |  | AKN1028       |
|                       | CN3401 PLUG 8-P                   |  | KM250MA8B     |
|                       | CN3402 16P SOCKET                 |  | KP200IA16L    |

**PHOTO DIODE ASSY (AWZ7657)**

|                       |        |  |              |
|-----------------------|--------|--|--------------|
| <b>SEMICONDUCTORS</b> |        |  |              |
|                       | IC2602 |  | PD410PI      |
|                       | IC2601 |  | PFC502       |
|                       | IC2603 |  | SBX8025-H    |
|                       | Q2602  |  | 2SC2712      |
|                       | Q2601  |  | 2SK302       |
| <b>COIL</b>           |        |  |              |
|                       | L2601  |  | LAU221K      |
| <b>CAPACITORS</b>     |        |  |              |
|                       | C2602  |  | CCSQCH181J50 |
|                       | C2604  |  | CCSQCH820J50 |
|                       | C2607  |  | CEAL470M6R3  |

| Mark             | No.             | Description | Parts No.    |
|------------------|-----------------|-------------|--------------|
|                  | C2605           |             | CKSQYB103K50 |
|                  | C2603           |             | CKSQYB473K50 |
|                  | C2601 ,C2606    |             | CKSQYF104Z25 |
| <b>RESISTORS</b> |                 |             |              |
|                  | All Resistors   |             | RS1/10S□□□J  |
| <b>OTHERS</b>    |                 |             |              |
|                  | LED HOLDER(PLS) |             | AMR7040      |

**RF AMP ASSY (AWZ7658)**

|                       |                         |  |              |
|-----------------------|-------------------------|--|--------------|
| <b>SEMICONDUCTORS</b> |                         |  |              |
| NSP                   | IC2501                  |  |              |
| NSP                   | IC2502,IC2504           |  |              |
|                       | D2501 -D2503            |  | 1SS352       |
| <b>COILS</b>          |                         |  |              |
|                       | L2501 ,L2502            |  | LAU221K      |
| <b>CAPACITORS</b>     |                         |  |              |
| NSP                   | TC2501                  |  |              |
| NSP                   | C2520                   |  |              |
| NSP                   | C2514                   |  |              |
|                       | C2501                   |  | CEAL100M6R3  |
|                       | C2508                   |  | CEAL101M6R3  |
|                       | C2503                   |  | CEAL2R2M35   |
|                       | C2504                   |  | CEALR10M50   |
|                       | C2507                   |  | CKSQYB103K50 |
|                       | C2513                   |  | CKSQYB104K25 |
|                       | C2502 ,C2506            |  | CKSQYB473K50 |
| <b>RESISTORS</b>      |                         |  |              |
|                       | All Resistors           |  | RS1/10S□□□J  |
| <b>OTHERS</b>         |                         |  |              |
| NSP                   | X2501 CERAMIC RESONATOR |  |              |

**FRONT CONTROL ASSY (AWZ6002)**

|                       |                            |  |               |
|-----------------------|----------------------------|--|---------------|
| <b>SEMICONDUCTORS</b> |                            |  |               |
|                       | IC2842                     |  | M5218AL       |
|                       | IC2841                     |  | PD5136        |
|                       | Q2842                      |  | 2SA933S       |
|                       | Q2841 ,Q2843               |  | 2SC1740S      |
|                       | D2842                      |  | AEL1152       |
|                       | D2843 ,D2844 ,D2846 ,D2847 |  | HSS104-02     |
|                       | D2841                      |  | MTZJ3.0       |
|                       | PC2841                     |  | U5C-08SC      |
| <b>SWITCHES</b>       |                            |  |               |
|                       | S2841 -S2852               |  | ASG1034       |
| <b>CAPACITORS</b>     |                            |  |               |
|                       | C2841 ,C2842               |  | CCCSL221J50   |
|                       | C2849                      |  | CEAS221M10    |
|                       | C2848                      |  | CEJA100M35    |
|                       | C2846                      |  | CEJA2R2M50    |
|                       | C2844                      |  | CEJA330M25    |
|                       | C2843                      |  | CFTXA104J50   |
|                       | C2850                      |  | CKCYF103Z50   |
|                       | C2847                      |  | CKDYB472K50   |
|                       | C2845                      |  | CKDYF473Z50   |
| <b>RESISTORS</b>      |                            |  |               |
|                       | R2849                      |  | RD1/2PM561J   |
|                       | R2857                      |  | RD1/2PMF820J  |
|                       | R2867                      |  | RD1/2PMFL470J |
|                       | VR2841 (47k)               |  | ACP1045       |
|                       | Other Resistors            |  | RD1/8PM□□□J   |

| Mark          | No.    | Description                 | Parts No.       |
|---------------|--------|-----------------------------|-----------------|
| <b>OTHERS</b> |        |                             |                 |
|               | X2841  | CERAMIC OSCILLATOR (480kHz) | ASS1043         |
|               |        | CABLE HOLDER                | AKT1012         |
|               |        | LED HOLDER                  | AMR1733         |
|               | J102   | JUMPER WIRE                 | D15A05-200-2468 |
|               | CN2842 | PLUG 3-P                    | KM250MA3        |
|               | CN2841 | PLUG 5-P                    | KM250MA5B       |

#### FRONT INPUT ASSY (AWZ6003)

|                       |                     |          |               |
|-----------------------|---------------------|----------|---------------|
| <b>SEMICONDUCTORS</b> |                     |          |               |
|                       | Q5001 -Q5003        |          | 2SC1740S      |
|                       | D5001 ,D5002        |          | MTZJ15        |
| <b>CAPACITORS</b>     |                     |          |               |
|                       | C5001 -C5003 ,C5005 |          | CEAS470M25    |
|                       | C5006               |          | CKCYF473Z50   |
| <b>RESISTORS</b>      |                     |          |               |
|                       | R5017               |          | RD1/2PMFL101J |
|                       | Other Resistors     |          | RD1/8PM□□□J   |
| <b>OTHERS</b>         |                     |          |               |
|                       | PIN JACK(1P)        |          | AKB1111       |
|                       | PIN JACK(1P)        |          | AKB1112       |
|                       | PIN JACK(1P)        |          | AKB1113       |
|                       | SOCKET              |          | AKP1051       |
|                       | CN5005              | PLUG 9-P | KM250MA9      |

#### IR RECEIVER ASSY (AWZ6004)

|                       |                    |  |             |
|-----------------------|--------------------|--|-------------|
| <b>SEMICONDUCTORS</b> |                    |  |             |
|                       | Q2871              |  | 2SC1740S    |
| <b>COIL</b>           |                    |  |             |
|                       | L2871              |  | LAU221K     |
| <b>CAPACITOR</b>      |                    |  |             |
|                       | C2871              |  | CEJA101M10  |
| <b>RESISTORS</b>      |                    |  |             |
|                       | All Resistors      |  | RD1/8PM□□□J |
| <b>OTHERS</b>         |                    |  |             |
|                       | CABLE HOLDER       |  | AKT1012     |
|                       | SHIELD CASE A(MET) |  | ANK7009     |

#### PRO S.G ASSY (AWZ6005)

|                       |               |           |             |
|-----------------------|---------------|-----------|-------------|
| <b>SEMICONDUCTORS</b> |               |           |             |
|                       | IC2226        |           | NJM4558DXP  |
|                       | Q2226         |           | 2SC1740S    |
| <b>CAPACITORS</b>     |               |           |             |
|                       | C2227 ,C2228  |           | CEAS101M10  |
|                       | C2226 ,C2229  |           | CEAS101M25  |
|                       | C2232         |           | CKCYF102Z50 |
|                       | C2230         |           | CKCYF473Z50 |
| <b>RESISTORS</b>      |               |           |             |
|                       | All Resistors |           | RD1/8PM□□□J |
| <b>OTHERS</b>         |               |           |             |
|                       | CN2226        | 6P SOCKET | KP200IA6L   |

#### CENTER SP SW ASSY (AWZ6006)

|                       |                     |  |            |
|-----------------------|---------------------|--|------------|
| <b>SEMICONDUCTORS</b> |                     |  |            |
|                       | IC2921              |  | MC14066BCP |
|                       | Q2924 -Q2926        |  | 2SA933S    |
|                       | Q2921 -Q2923 ,Q2927 |  | 2SC1740S   |

|                                       |               |            |             |
|---------------------------------------|---------------|------------|-------------|
| <b>Mark No. Description Parts No.</b> |               |            |             |
|                                       | D2921 -D2926  |            | HSS104-02   |
| <b>CAPACITORS</b>                     |               |            |             |
|                                       | C2923         |            | CEAS2R2M50  |
|                                       | C2924         |            | CEAS470M25  |
|                                       | C2925         |            | CKCYF103Z50 |
| <b>RESISTORS</b>                      |               |            |             |
|                                       | All Resistors |            | RD1/8PM□□□J |
| <b>OTHERS</b>                         |               |            |             |
|                                       | CN2921        | 11P SOCKET | KP200IA11L  |

#### SUB RECEIVE ASSY (AWZ6007)

|                       |                    |  |             |
|-----------------------|--------------------|--|-------------|
| <b>SEMICONDUCTORS</b> |                    |  |             |
|                       | IC1351             |  | M5223P      |
| <b>CAPACITORS</b>     |                    |  |             |
|                       | C1351 -C1353       |  | CKCYB103K50 |
|                       | C1354              |  | CKCYX104M16 |
| <b>RESISTORS</b>      |                    |  |             |
|                       | All Resistors      |  | RD1/8PM□□□J |
| <b>OTHERS</b>         |                    |  |             |
|                       | CABLE HOLDER       |  | AKT1012     |
|                       | SHIELD CASE B(MET) |  | ANK7010     |

#### EXT. SP ASSY (AWZ6008)

|               |                      |          |          |
|---------------|----------------------|----------|----------|
| <b>OTHERS</b> |                      |          |          |
|               | SPEAKER TERMINAL 4-P |          | AKE1030  |
|               | CN2911               | PLUG 4-P | KM250MA4 |

#### CONVERGENCE PD ASSY (AWZ5991)

|                       |                            |           |             |
|-----------------------|----------------------------|-----------|-------------|
| <b>SEMICONDUCTORS</b> |                            |           |             |
|                       | Q2806                      |           | 2SA933S     |
|                       | Q2801 -Q2805 ,Q2807 ,Q2808 |           | 2SC1740S    |
|                       | D2801 (LED : RED)          |           | AEL1099     |
|                       | D2802 -D2805               |           | HSS104-02   |
| <b>CAPACITORS</b>     |                            |           |             |
|                       | C2806                      |           | CEANP010M50 |
|                       | C2803                      |           | CEAS100M50  |
|                       | C2804 ,C2805               |           | CEAS101M10  |
|                       | C2801                      |           | CEAS221M10  |
|                       | C2802                      |           | CEAS2R2M50  |
| <b>RESISTORS</b>      |                            |           |             |
|                       | All Resistors              |           | RD1/8PM□□□J |
| <b>OTHERS</b>         |                            |           |             |
|                       | CN2801                     | 5P SOCKET | KP200IA5L   |

#### P IN P ASSY (AWZ5992)

|                       |                                   |  |              |
|-----------------------|-----------------------------------|--|--------------|
| <b>SEMICONDUCTORS</b> |                                   |  |              |
|                       | IC3001                            |  | HA11569FS    |
|                       | IC3002                            |  | HD49412FS    |
|                       | IC3003                            |  | HM53461ZP-12 |
|                       | IC3202                            |  | MC14066BCP   |
|                       | IC3201                            |  | MC141622FU   |
|                       | Q3001 ,Q3003 ,Q3016 ,Q3207 ,Q3208 |  | 2SA933S      |
|                       | Q3214 ,Q3224 ,Q3226 ,Q3229        |  | 2SA933S      |
|                       | Q3002 ,Q3008 ,Q3009 ,Q3012 -Q3014 |  | 2SC1740S     |
|                       | Q3019 ,Q3201 -Q3206 ,Q3210 -Q3212 |  | 2SC1740S     |
|                       | Q3215 ,Q3217 ,Q3219 -Q3223 ,Q3225 |  | 2SC1740S     |



| Mark                     | No.                               | Description | Parts No.    |
|--------------------------|-----------------------------------|-------------|--------------|
|                          | Q3227 ,Q3228 ,Q3230 ,Q3231        |             | 2SC1740S     |
|                          | Q3004                             |             | XDC143ES     |
|                          | D3001 ,D3005 ,D3006 ,D3203 -D3213 |             | HSS104-02    |
|                          | D3202                             |             | MTZJ15       |
|                          | D3002 ,D3008 ,D3009 ,D3201        |             | MTZJ6.8      |
|                          | D3214 ,D3215                      |             | MTZJ6.8      |
| <b>COILS AND FILTERS</b> |                                   |             |              |
|                          | F3001 (F=14.3MH)                  |             | ATF1166      |
|                          | F3002 (F=16.1MH)                  |             | ATF1167      |
|                          | DL3001 (DELAY LINE)               |             | ATN1022      |
|                          | L3002 ,L3016 ,L3022 (BEAD FILTER) |             | ATX1008      |
|                          | L3201                             |             | ATX1008      |
|                          | L3004 ,L3012 ,L3201 ,L3208 ,L3210 |             | LAU101K      |
|                          | L3211                             |             | LAU101K      |
|                          | L3013 ,L3014                      |             | LAU120K      |
|                          | L3019                             |             | LAU150J      |
|                          | L3204 -L3207                      |             | LAU150K      |
|                          | L3009                             |             | LAU181K      |
|                          | L3015                             |             | LAU1R2K      |
|                          | L3008                             |             | LAU220K      |
|                          | L3007                             |             | LAU221K      |
|                          | L3001 ,L3003 ,L3006               |             | LAU4R7K      |
|                          | L3020 ,L3021 ,L3216               |             | LAU4R7K      |
|                          | L3215                             |             | LAU5R6K      |
|                          | L3010                             |             | LAU680K      |
| <b>CAPACITORS</b>        |                                   |             |              |
|                          | C3045 ,C3072                      |             | CCCCCH100D50 |
|                          | C3049 ,C3069                      |             | CCCCCH220J50 |
|                          | C3037 ,C3051                      |             | CCCCCH470J50 |
|                          | C3107                             |             | CCCCCH560J50 |
|                          | C3046                             |             | CCCCCH680J50 |
|                          | C3216 ,C3217                      |             | CCCCSL080D50 |
|                          | C3007 ,C3011 ,C3074 ,C3274        |             | CCCCSL101J50 |
|                          | C3214 ,C3215 ,C3227               |             | CCCCSL121J50 |
|                          | C3084                             |             | CCCCSL150J50 |
|                          | C3001 ,C3003 ,C3073 ,C3083 ,C3085 |             | CCCCSL151J50 |
|                          | C3032                             |             | CCCCSL220J50 |
|                          | C3040 ,C3075 ,C3212 ,C3213        |             | CCCCSL330J50 |
|                          | C3222 ,C3223 ,C3272               |             | CCCCSL330J50 |
|                          | C3080 ,C3275                      |             | CCCCSL470J50 |
|                          | C3077 ,C3255                      |             | CCCCSL820J50 |
|                          | C3004 ,C3042 ,C3057 ,C3081 ,C3082 |             | CEAS010M50   |
|                          | C3242                             |             | CEAS010M50   |
|                          | C3012 ,C3101 -C3104 ,C3106        |             | CEAS0R1M50   |
|                          | C3008 ,C3009 ,C3014 ,C3022 ,C3028 |             | CEAS100M50   |
|                          | C3043 ,C3055 ,C3059 ,C3066 ,C3070 |             | CEAS100M50   |
|                          | C3094 ,C3108 ,C3109 ,C3111        |             | CEAS100M50   |
|                          | C3115 ,C3116 ,C3201 ,C3209        |             | CEAS100M50   |
|                          | C3229 ,C3230 ,C3268               |             | CEAS100M50   |
|                          | C3002 ,C3005 ,C3018 ,C3086 ,C3238 |             | CEAS101M10   |
|                          | C3203 ,C3204 ,C3245 ,C3257        |             | CEAS101M25   |
|                          | C3220 ,C3225 ,C3228               |             | CEAS102M6    |
|                          | C3024 -C3026 ,C3052 ,C3067        |             | CEAS2R2M50   |
|                          | C3207 ,C3235 ,C3241 ,C3269 ,C3271 |             | CEAS470M25   |
|                          | C3276                             |             | CEAS470M25   |
|                          | C3021 ,C3034 ,C3035 ,C3061        |             | CEAS4R7M50   |
|                          | C3020 ,C3039 ,C3048 ,C3065        |             | CEASR22M50   |
|                          | C3099                             |             | CEAS221M10   |
|                          | C3078                             |             | CEAS221M16   |
|                          | C3058                             |             | CEASR47M50   |
|                          | C3205 ,C3224 ,C3264 ,C3270        |             | CFTXA104J50  |
|                          | C3277 ,C3278                      |             | CFTXA104J50  |
|                          | C3017 ,C3047 ,C3050 ,C3054 ,C3239 |             | CKCYB102K50  |

| Mark                              | No.   | Description | Parts No.       |
|-----------------------------------|---|-------------|-----------------|
|                                   | C3265   |             | CKCYB102K50     |
|                                   | C3273   |             | CKCYB331K50     |
|                                   | C3266   |             | CKCYB332K50     |
|                                   | C3100   |             | CKCYB471K50     |
|                                   | C3029   |             | CKCYB681K50     |
|                                   | C3010 ,C3013 ,C3019 ,C3023 ,C3027               |             | CKCYF103Z50     |
|                                   | C3056 ,C3060 ,C3062 ,C3063 ,C3064               |             | CKCYF103Z50     |
|                                   | C3098 ,C3110 ,C3114 ,C3117 ,C3202               |             | CKCYF103Z50     |
|                                   | C3206 ,C3208 ,C3221 ,C3226                      |             | CKCYF103Z50     |
|                                   | C3232 -C3234                                    |             | CKCYF103Z50     |
|                                   | C3236 ,C3237 ,C3246 ,C3253 ,C3256               |             | CKCYF103Z50     |
|                                   | C3267   |             | CKCYF103Z50     |
|                                   | C3006 ,C3030 ,C3038 ,C3044 ,C3071               |             | CKCYX103M16     |
|                                   | C3076 ,C3079 ,C3113                             |             | CKCYX103M16     |
|                                   | C3112   |             | CKCYX104M16     |
|                                   | C3053 ,C3068                                    |             | CKCYX333M16     |
|                                   | C3031   |             | CKCYX683M16     |
|                                   | C3015 ,C3036                                    |             | CQMA152J50      |
|                                   | C3016 ,C3033                                    |             | CQMA561J50      |
| <b>RESISTORS</b>                  |   |             |                 |
|                                   | R3232   |             | RD1/2PMFL3R9J   |
|                                   | VR3002 ,VR3003 (470Ω)                           |             | ACP1039         |
|                                   | VR3001 (4.7k)                                   |             | ACP1042         |
|                                   | Other Resistors                                 |             | RD1/8PM□□□J     |
| <b>OTHERS</b>                     |   |             |                 |
|                                   | CABLE HOLDER                                    |             | AKT1011         |
|                                   | CABLE HOLDER                                    |             | AKT1012         |
|                                   | SHIELD CASE                                     |             | ANK1202         |
|                                   | SHIELD PLATE                                    |             | ANK1203         |
|                                   | X3003 ,X3004 CRYSTAL RESONATOR<br>(3.579545MHz) |             | ASS1091         |
|                                   | X3001 ,X3002 CERAMIC RESONATOR<br>(503kHz)      |             | ASS1112         |
| <b>A CONNECTOR ASSY (AWZ5994)</b> |   |             |                 |
| <b>OTHERS</b>                     |   |             |                 |
|                                   | CABLE HOLDER                                    |             | AKT1007         |
|                                   | CABLE HOLDER                                    |             | AKT1023         |
|                                   | J103 JUMPER WIRE                                |             | D15A09-075-2468 |
|                                   | J104 JUMPER WIRE                                |             | D15A11-075-2468 |
|                                   | CN2892 10P SOCKET                               |             | KP200IA10L      |
|                                   | CN2891 11P SOCKET                               |             | KP200IA11L      |
| <b>B CONNECTOR ASSY (AWZ5995)</b> |   |             |                 |
| <b>OTHERS</b>                     |   |             |                 |
|                                   | CABLE HOLDER                                    |             | AKT1007         |
|                                   | CABLE HOLDER                                    |             | AKT1023         |
|                                   | CN2902 11P SOCKET                               |             | KP200IA11L      |
|                                   | CN2901 8P SOCKET                                |             | KP200IA8L       |
| <b>C CONNECTOR ASSY (AWZ5996)</b> |   |             |                 |
| <b>OTHERS</b>                     |   |             |                 |
|                                   | CABLE HOLDER                                    |             | AKT1011         |
|                                   | CABLE HOLDER                                    |             | AKT1012         |
|                                   | J2 JUMPER WIRE                                  |             | D15A05-150-2468 |
|                                   | J1 JUMPER WIRE                                  |             | D15A13-150-2468 |
|                                   | CN3280 13P SOCKET                               |             | KP200IA13L      |
|                                   | CN3285 5P SOCKET                                |             | KP200IA5L       |

| Mark                     | No.                 | Description | Parts No.     |
|--------------------------|---------------------|-------------|---------------|
| <b>VM ASSY (AWZ5997)</b> |                     |             |               |
| SEMICONDUCTORS           |                     |             |               |
|                          | Q3311               |             | 2SA965        |
|                          | Q3306               |             | 2SA985A       |
|                          | Q3302 ,Q3307 -Q3310 |             | 2SC1740S      |
|                          | Q3312               |             | 2SC2235       |
|                          | Q3305               |             | 2SC2275A      |
|                          | D3301 -D3304        |             | HSS104-02     |
| COILS AND FILTERS        |                     |             |               |
|                          | L3301               |             | LAU220K       |
| CAPACITORS               |                     |             |               |
|                          | C3309 ,C3310        |             | CEAS010M50    |
|                          | C3305               |             | CEAS2R2M100   |
|                          | C3301 ,C3303 ,C3315 |             | CEAS470M25    |
|                          | C3314               |             | CEHAQ220M2C   |
|                          | C3316               |             | CKCYB102K50   |
|                          | C3318               |             | CKCYB472K50   |
|                          | C3319 ,C3320        |             | CKCYB561K500  |
|                          | C3307 ,C3308 ,C3317 |             | CKCYF103Z50   |
|                          | C3313               |             | CKDYF103Z500  |
|                          | C3304 ,C3306        |             | CQMA103K250   |
|                          | C3312               |             | CQMA104K250   |
| RESISTORS                |                     |             |               |
|                          | R3322               |             | RD1/2PM2R7J   |
|                          | R3318               |             | RD1/2PMFL222J |
|                          | R3334 ,R3335        |             | RD1/2PMFL2R2J |
|                          | R3315 ,R3317        |             | RD1/2PMFL473J |
|                          | R3310               |             | RD1/2PMFL560J |
|                          | R3321               |             | RD1/2PMFL5R6J |
|                          | R3333               |             | RD1/4PM561J   |
|                          | R3323 ,R3324        |             | RD1/4PMFL470J |
|                          | R3313               |             | RD1/4PMFL2R2J |
|                          | R3319 ,R3320        |             | RS1MMF331J    |
|                          | Other Resistors     |             | RD1/8PM□□□J   |
| OTHERS                   |                     |             |               |
|                          | HEAT SINK M         |             | ANH-697       |
|                          | CN3303 PLUG 3-P     |             | KM250MA3      |
|                          | CN3304 PLUG 3-P     |             | KM250MA3R     |
|                          | CN3301 PLUG 7-P     |             | KM250MA7      |
|                          | SCREW               |             | PBZ30P080FMC  |

#### RELAY DRIVE ASSY (AWZ5999)

|                |                              |  |             |
|----------------|------------------------------|--|-------------|
| SEMICONDUCTORS |                              |  |             |
|                | Q101                         |  | 2SA933S     |
|                | Q102 ,Q103 ,Q114 ,Q180       |  | 2SC1740S    |
|                | D107 ,D108 ,D137 ,D142 ,D188 |  | HSS104-02   |
| CAPACITORS     |                              |  |             |
|                | C112                         |  | CEAS100M50  |
|                | C107 ,C115 ,C183             |  | CEAS470M25  |
| RESISTORS      |                              |  |             |
|                | All Resistors                |  | RD1/8PM□□□J |
| OTHERS         |                              |  |             |
|                | CN106 8P SOCKET              |  | KP200IA8L   |

#### SUB CONVERGENCE ASSY (AWZ6001)

|                |                                   |  |           |
|----------------|-----------------------------------|--|-----------|
| SEMICONDUCTORS |                                   |  |           |
|                | IC3551                            |  | NJM4558LD |
|                | Q3551 ,Q3553 -Q3555 ,Q3557 ,Q3558 |  | 2SC1740S  |
|                | Q3560                             |  | 2SC1740S  |

|            |                     |             |             |
|------------|---------------------|-------------|-------------|
| Mark       | No.                 | Description | Parts No.   |
|            | Q3552 ,Q3556 ,Q3559 |             | 2SC3064     |
|            | D3559               |             | HSS104-02   |
|            | D3551 -D3558        |             | MTZJ12      |
| CAPACITORS |                     |             |             |
|            | C3551 ,C3554        |             | CEAS101M10  |
|            | C3552 ,C3553        |             | CKCYF473Z50 |
| RESISTORS  |                     |             |             |
|            | All Resistors       |             | RD1/8PM□□□J |
| OTHERS     |                     |             |             |
|            | CN3551 6P SOCKET    |             | KP200IA6L   |

#### ☆ POWER SUPPLY ASSY (AWV1499 and AWV1500)

|                |                                       |  |            |
|----------------|---------------------------------------|--|------------|
| SEMICONDUCTORS |                                       |  |            |
|                | IC201 ,IC301                          |  | NJM4558DXP |
|                | IC101 ,IC102                          |  | PC817CD    |
|                | Q204 ,Q206 ,Q305 ,Q306                |  | 2SA1145    |
|                | Q107 ,Q111 ,Q201                      |  | 2SA933S    |
| X NSP          | Q301 ,Q302                            |  |            |
|                | Q108 ,Q113 ,Q202 ,Q209                |  | 2SC1740S   |
| X NSP          | Q303                                  |  |            |
|                | Q109 ,Q203                            |  | 2SC2705    |
| X NSP          | Q304                                  |  |            |
|                | Q205 ,Q307                            |  | 2SC3332    |
|                | Q210                                  |  | 2SC4256    |
|                | Q110 ,Q112 ,Q207 ,Q308                |  | 2SD1276A   |
|                | Q105 ,Q106                            |  | 2SD1835    |
| △              | Q208 ,Q309                            |  | 2SD2300    |
|                | Q104                                  |  | 2SK1168    |
| △              | D213 ,D306                            |  | 11DF2FD    |
|                | D101 ,D102 ,D104 ,D105 ,D148          |  | 1SS145     |
|                | D183 ,D184                            |  | 1SS145     |
|                | D145 ,D150                            |  | AEL1099    |
|                | D106                                  |  | D5SBA60    |
|                | D214 ,D217 ,D307                      |  | ES1F       |
|                | D127 ,D129 ,D130                      |  | FMP-G12S   |
|                | D116 -D123 ,D125 ,D126                |  | HSS104-02  |
|                | D139 -D141 ,D182 ,D186 ,D187          |  | HSS104-02  |
|                | D203 -D212 ,D218 -D220                |  | HSS104-02  |
|                | D303 -D305 ,D311 ,D312                |  | HSS104-02  |
|                | D135                                  |  | HZS18-1L   |
|                | D115 ,D138 ,D180 ,D181                |  | HZS18L     |
|                | D103 ,D134 ,D136                      |  | HZS6B1L    |
|                | D124                                  |  | HZS6C2L    |
|                | D215 ,D216 ,D309 ,D310                |  | RD12ESB    |
|                | D316 ,D317                            |  | RD12ESB    |
|                | D201                                  |  | RD39ESB4   |
| X NSP          | D301                                  |  |            |
| X NSP          | D302                                  |  |            |
|                | D202                                  |  | RD5.1ESB2  |
|                | D133                                  |  | RD5.1ESB3  |
|                | D128                                  |  | RL2Z       |
|                | D185                                  |  | RL4Z       |
|                | D308                                  |  | RU1        |
|                | D132                                  |  | RU4A       |
|                | D189                                  |  | S5688G     |
| COILS          |                                       |  |            |
|                | L101 ,L102 (2mH)                      |  | ATF1118    |
|                | L103 (1uH)                            |  | ATH-133    |
|                | L201 (7uH) DUMMY F.B.T                |  | ATL1053    |
| △              | L202                                  |  | ATL1089    |
|                | L104 -L111 ,L114 -L117 (FERRITE BEAD) |  | ATX1023    |
|                | L301                                  |  | LTA272J    |

| Mark                | No.                                      | Description  | Parts No. | Mark      | No.                          | Description   | Parts No.   |
|---------------------|--|--------------|-----------|-----------|------------------------------|---------------|-------------|
| TRANSFORMERS        |  |              |           |           |                              |               |             |
|                     | T102                                     |              | ATK1079   |           | C201                         |               | CKDYF473Z50 |
|                     | T101                                     |              | ATT1194   |           | C126                         |               | CQMA102J50  |
| △                   | T201 ,T301                               |              | ATK1045   |           | C125 ,C209 ,C227             |               | CQMA103J50  |
| △ X NSP             | T302 (AWV1499)                           |              |           |           | C206                         |               | CQMA223J50  |
| △ X NSP             | T302 (AWV1500)                           |              |           |           | C208                         |               | CQMA471J50  |
| SWITCHES AND RELAYS |  |              |           |           | C121                         |               | CQMA473J50  |
|                     | RY101 ,RY102                             | ASR1036      |           |           | C223                         |               | CQPA683J200 |
| CAPACITORS          |  |              |           | RESISTORS |                              |               |             |
|                     | C101 ,C102 (0.22/AC250)                  | ACE1104      |           |           | R102 ,R103 (2.2M, 1/2W)      | ACN-208       |             |
|                     | C132                                     | ACG-032      |           |           | R349 (47, 1/2W)              | ACN-225       |             |
|                     | C110 ,C111 ,C113 ,C114 (0.01/AC250)      | ACG-501      |           |           | R247 (33k, 1/2W)             | ACN1011       |             |
|                     | C105 ,C106 ,C108 ,C109 (4700p/AC400)     | ACG-505      |           |           | R145 ,R158 ,R159 (1, 5W)     | ACN1032       |             |
|                     | C222 (1000P/2k)                          | ACG1001      |           |           | R329 ,R346                   | RD1/2PM122J   |             |
|                     | C323 (680P/2k)                           | ACG1024      |           | X NSP     | R257 ,R328                   | RD1/2PM152J   |             |
|                     | C119 ,C122 ,C152 ,C219 ,C220 (4700p /2K) | ACG1028      |           |           | R321                         | RD1/2PM821J   |             |
|                     | C120 (4.7/250)                           | ACH-378      |           |           | R126 ,R240                   | RD1/2PMFL103J |             |
| △                   | C228 ,C319 (10/160)                      | ACH1117      |           | △         | R326                         | RD1/2PMFL221J |             |
|                     | C135 (560/160)                           | ACH1146      |           |           | R252                         | RD1/2PMFL223J |             |
|                     | C118 (470/200)                           | ACH1147      |           |           | R123 ,R143 ,R166 ,R170 ,R234 | RD1/2PMFL470J |             |
|                     | C116 (820/200)                           | ACH1148      |           |           | R336                         | RD1/2PMFL472J |             |
|                     | C312 ,C317                               | CCCSL101J50  |           | △         | R235                         | RD1/2PMFL473J |             |
|                     | C214 ,C218 ,C314                         | CCCSL101K500 |           | X NSP     | R337                         |               |             |
|                     | C229                                     | CCCSL181K500 |           | X NSP     | R307                         |               |             |
|                     | C129 ,C130 ,C156 ,C157 ,C181             | CCCSL221K500 |           | △         | R344                         | RD1/4PMFL2R2J |             |
|                     | C215                                     | CEAS010M100  |           |           | R232                         | RD1/4PMFL392J |             |
|                     | C127 ,C202                               | CEAS010M50   |           | △         | R204 ,R218 ,R253 ,R302 ,R314 | RD1/4PMFL3R9J |             |
|                     | C304 ,C321                               | CEAS100M50   |           | △         | R222 ,R320                   | RD1/4PMFL470J |             |
|                     | C207                                     | CEAS221M16   |           | △         | R236 ,R338                   | RD1/4PMFL471J |             |
|                     | C185                                     | CEAS221M25   |           | △         | R347 ,R348                   | RN1/2PC3902F  |             |
|                     | C153                                     | CEAS470M25   |           | X NSP     | R340                         |               |             |
|                     | C148 ,C205 ,C217 ,C306                   | CEHAQ010M50  |           |           | R121                         | RN1/4PC1001F  |             |
|                     | C211 ,C310                               | CEHAQ100M2C  |           |           | R134 ,R136                   | RN1/4PC1603F  |             |
|                     | C145 ,C146 ,C149 ,C203 ,C204             | CEHAQ100M50  |           |           | R156                         | RN1/4PC2101F  |             |
|                     | C327                                     | CEHAQ100M50  |           |           | R157                         | RN1/4PC2431F  |             |
|                     | C103                                     | CEHAQ102M25  |           |           | R133                         | RN1/4PC3601F  |             |
|                     | C313                                     | CEHAQ220M16  |           |           | R122                         | RN1/4PC8200F  |             |
|                     | C325                                     | CEHAQ220M25  |           |           | R239                         | RS1LMF010J    |             |
|                     | C322                                     | CEHAQ220M2C  |           |           | R142                         | RS1LMF100J    |             |
|                     | C305 ,C309                               | CEHAQ221M10  |           |           | R229                         | RS1LMF153J    |             |
|                     | C150 ,C302                               | CEHAQ221M16  |           |           | R180                         | RS1LMF272J    |             |
|                     | C138                                     | CEHAQ222M16  |           |           | R118                         | RS1LMF473J    |             |
|                     | C134                                     | CEHAQ222M35  |           | △         | R351                         | RS1LMFR22J    |             |
|                     | C182                                     | CEHAQ222M50  |           |           | R141                         | RS2LMF223J    |             |
|                     | C213                                     | CEHAQ330M16  |           |           | R230                         | RS3LMF010J    |             |
|                     | C142                                     | CEHAQ331M35  |           |           | R241 ,R242 ,R245             | RS3LMF104J    |             |
|                     | C184 ,C187                               | CEHAQ332M16  |           | △         | R343                         | RS3LMF151J    |             |
|                     | C133 ,C137                               | CEHAQ332M35  |           |           | R209                         | RS3LMF153J    |             |
|                     | C318                                     | CEHAQ4R7M50  |           | △         | R358                         | RS3LMF822J    |             |
| △                   | C324                                     | CFPHW123H3D  |           | △         | R119 ,R120                   | RS3LMFR22J    |             |
| △                   | C225                                     | CFPHW153H3D  |           | △         | R341                         | RS3LMFR47J    |             |
|                     | C226                                     | CFPMW824J2D  |           | △         | R331                         | RS3LMFR68J    |             |
|                     | C221                                     | CFTYA474J50  |           |           | R128 ,R129                   | RT10PZ180K    |             |
|                     | C301 ,C320                               | CKCYB102K50  |           | X NSP     | R304                         |               |             |
|                     | C216                                     | CKCYB102K500 |           | X NSP     | R305 ,R308 ,R315             |               |             |
|                     | C308                                     | CKCYB331K50  |           | X NSP     | R312                         |               |             |
|                     | C210                                     | CKCYB331K500 |           | X NSP     | R317                         |               |             |
|                     | C316                                     | CKCYB392K500 |           | X NSP     | R318                         |               |             |
|                     | C147                                     | CKCYB681K50  |           | X NSP     | R309 ,R313                   |               |             |
|                     | C104 ,C307 ,C311                         | CKCYF103Z50  |           | X NSP     | R306 ,R319                   |               |             |
|                     | C315                                     | CKCYF222Z500 |           | X NSP     | R316                         |               |             |
|                     | C140 ,C141 ,C144 ,C151 ,C303             | CKCYF473Z50  |           | X NSP     | R342                         |               |             |
|                     | C326                                     | CKCYF473Z50  |           |           | VR101                        | VRTS6VS102    |             |
|                     | C212                                     | CKDYF103Z50  |           | X NSP     | VR301                        |               |             |
|                     | C139 ,C143                               | CKDYF103Z500 |           | X NSP     | VR302                        |               |             |

**SD-P5185-K,SD-P5183-K,  
SD-P4683-K,PRO-98**

| Mark        | No.                    | Description     | Parts No.    | Mark | No. | Description | Parts No. |
|-------------|------------------------|-----------------|--------------|------|-----|-------------|-----------|
|             |                        | Other Resistors | RD1/8PM□□□J  |      |     |             |           |
| O T H E R S |                        |                 |              |      |     |             |           |
| △           | FU104                  | (6.3A/125V)     | AEK-309      |      |     |             |           |
| △           | FU101                  | (8A/125A)       | AEK1002      |      |     |             |           |
| △           | FU102 ,FU105           | (4.0 A/125V)    | AEK1018      |      |     |             |           |
|             | CN202                  | PLUG 3-P        | AKM1055      |      |     |             |           |
|             | CN203 -CN205           | PLUG 6-P        | AKM1072      |      |     |             |           |
|             | CN102                  | PLUG 2-P        | AKM1127      |      |     |             |           |
|             | CN201                  | PLUG 10-P       | KM200IA10    |      |     |             |           |
|             | CN103                  | 11P PLUG        | KM200IA11    |      |     |             |           |
|             | CN105                  | 8P PLUG         | KM200IA8     |      |     |             |           |
|             | CN106                  | PLUG 3-P        | KM250MA3     |      |     |             |           |
|             | CN301                  | PLUG 5-P        | KM250MA5R    |      |     |             |           |
|             | CN104                  | PLUG 9-P        | KM250MA9     |      |     |             |           |
|             | H101 -H104 ,H107 -H110 | FUSE CLIP       | AKR1003      |      |     |             |           |
|             | FUSE CLIP              |                 | ANH-697      |      |     |             |           |
|             | MICA SHEET             |                 | AEP-056      |      |     |             |           |
|             | BINDER                 |                 | AEP-215      |      |     |             |           |
|             | HEAT SINK              |                 | ANH-880      |      |     |             |           |
|             | HEAT SINK B            |                 | ANH1021      |      |     |             |           |
|             | SHIELD CASE            |                 | ANH1165      |      |     |             |           |
|             | HEAT SINK              |                 | ANH1371      |      |     |             |           |
|             | HEAT SINK A            |                 | ANH1394      |      |     |             |           |
|             | SW HEAT SINK           |                 | ANH1505      |      |     |             |           |
|             | SCREW                  |                 | ABA-234      |      |     |             |           |
|             | SCREW                  |                 | ABA1099      |      |     |             |           |
|             | SCREW                  |                 | ABZ30P100FMC |      |     |             |           |
|             | SCREW                  |                 | BBZ30P080FCU |      |     |             |           |
|             | SCREW                  |                 | BBZ30P080FZK |      |     |             |           |
|             | SCREW                  |                 | PBZ30P080FMC |      |     |             |           |
|             | SCREW                  |                 | PPZ40P120FMC |      |     |             |           |
|             | SCREW                  |                 | VPZ40P100FMC |      |     |             |           |



## 9. ADJUSTMENTS

- In this section, all items required to be adjusted on this unit are described in the order of the adjustments to be performed. (See section 9.2)

For the adjustment items of each assembly, see section 9.1.

- When replacing the assemblies, be sure to use an assembly which works completely.
- Characters in parentheses ( ) beside an adjustment point are an abbreviation of the assembly containing that adjustment point.

A : AV I/O ASSY

C : CONVERGENCE ASSY

F : FRONT CONTROL ASSY (For PRO-98)

P : P IN P ASSY

S : POWER SUPPLY ASSY

U : U-COM. TUNER ASSY

VR1 : Focus variable resistor (VR1)

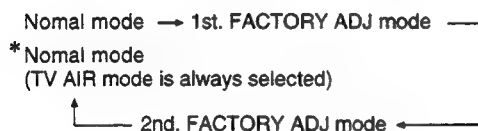
- The adjustment points and test points are shown in Fig.9-6 and 9-7 for each assembly.
- A test signal should be input to the laser disc terminal on the rear panel unless otherwise noted.
- Set the picture quality to standard unless otherwise noted.

### ● FACTORY ADJ mode

#### 1. Entering FACTORY ADJ mode

The FACTORY ADJ mode of this unit is divided into the 1st FACTORY ADJ mode for performing adjustments and 2nd FACTORY ADJ mode used in the manufacturing process of the factory.

Each time the S4107 (SD-P5185-K and 83 family) or S2847 (PRO-98) switch is pressed through the small hole at the center of the front panel with a thin rod, the mode will change cyclically as follows.



\* : When the mode is changed from FACTORY ADJ mode into normal mode, the items are changed into the following;

- INPUT SELECTOR : TV
- ★ TV-CATV mode : AIR
- ★ Antenna selector : A
- ★ Closed caption and P IN P : OFF
- Picture quality : STANDARD
- Password code for channel lock : 0000  
(For the password code, see pages 182 and 183.)
- Convergence adjustment: Initial position of user adjustment

Note:

The items marked with ★ are changed into the previous position when the MAIN POWER SW is OFF or AC power plug is unplugged from a wall socket.

The 2nd FACTORY ADJ mode is used in the factory and not for servicing.

#### 2. Operating 1st. FACTORY ADJ mode

When the unit enters 1st. FACTORY ADJ mode, ADJUSTMENT RANGE mode is first obtained. Every time the **MUTE** key on the remote control unit is pressed, the operation mode is switched from ADJUSTMENT RANGE mode to ADJUSTMENT OFFSET mode, ADJUSTMENT CONVERGENCE mode (not used), ADJUSTMENT GAME mode and ADJUSTMENT MPX mode, as shown in Fig.9-4. These modes are switched cyclically.

By pressing the following keys, the ADJUSTMENT mode can be switched directly.

- **MENU** key : ADJUSTMENT RANGE mode
- **▽** key : ADJUSTMENT OFFSET mode
- **SET** key : ADJ CONVERGE mode
- **P IN P** key : ADJUSTMENT MPX mode
- **□** key : Not used (ADJ CONVERGE AUTO)

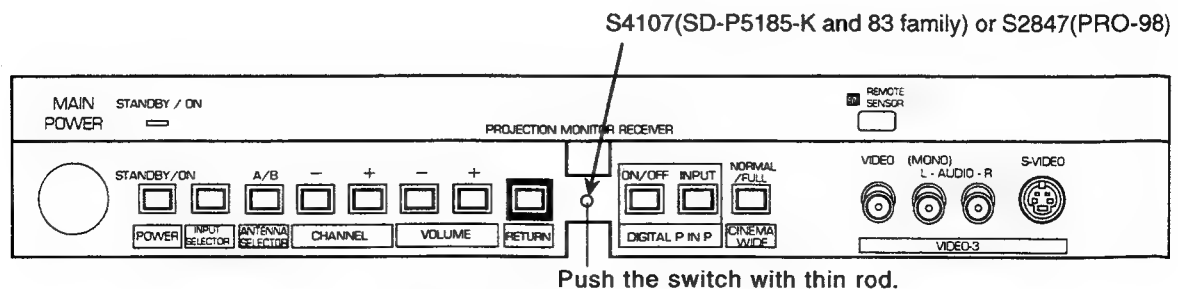


Fig.9-1 Entering FACTORY ADJ mode

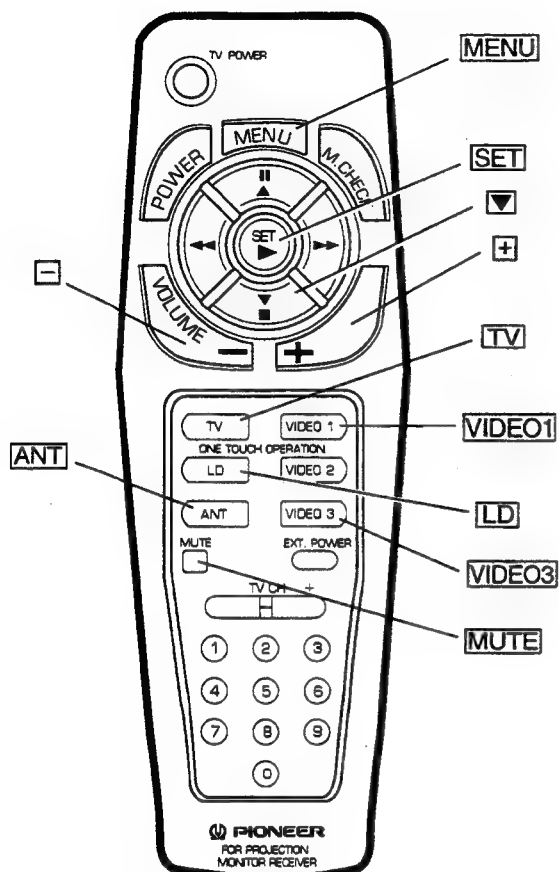


Fig. 9-2 Key indications on the remote control unit of  
AXD1415(CU-SD092 : SD-P5185-K and PRO-98)

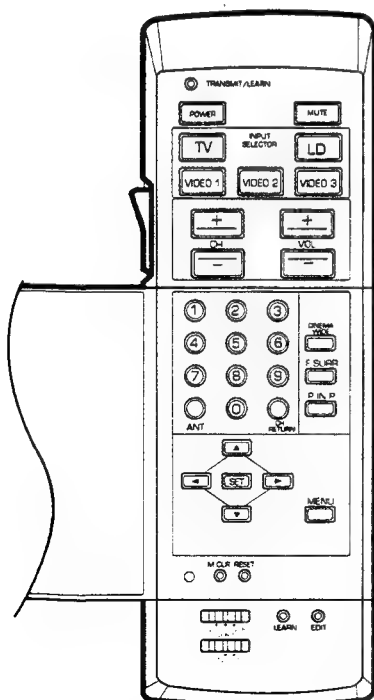


Fig. 9-3 Key indications on the remote control unit of  
AXD1416 (CU-SD091 : SD-P5183-K)  
(The upper cover is opened.)

### ① ADJUSTMENT RANGE mode

The ADJUSTMENT RANGE mode is to check how much the picture and sound quality change.

#### ● Function of the ADJUSTMENT RANGE mode

In this mode, adjustment functions are assigned to the numeric keys 1 through 5 of the remote control unit, as shown in Fig.9-4. Each numeric key corresponds to a particular adjustment function. Press the numeric key corresponding to the desired function and the selected function name will be displayed. To change the setting value, press the same key repeatedly and the setting value will change from CNT to MIN and MAX cyclically. When the TINT adjustment is selected, the meaning of the setting values change as follows:

#### ● TINT

CNT :Center



MIN :The color to purple



MAX :The color to green

By pressing the numeric keys 7 to 9 and 0, the VOLUME can be set to the following values.

7 Key : VOL20

8 Key : VOL30

9 Key : VOL40

0 Key : VOL 0

### ② ADJUSTMENT OFFSET mode

(PIONEER's standard setting mode)

ADJUSTMENT OFFSET mode is to set the standard picture quality (PIONEER's standard) for a normal picture.

#### ● Function of the ADJUSTMENT OFFSET mode

To adjustment picture quality, press one of the numeric keys 1 through 5, and an item to be adjusted such as color, sharpness, etc., assigned to the pressed button is selected and will appear on the screen, as shown in Fig.9-4. To change the setting value, press the VOL (+, -) keys until the desired value appears on the screen.

The setting picture quality on this mode will become the picture quality when setting the AV MEMORY to STANDARD on the normal screen.

### ③ ADJ.CONVERGENCE mode

ADJ.CONVERGENCE mode is for setting convergence.

For details, see section "9.4 CONVERGENCE ADJUSTMENTS."

### ④ ADJUSTMENT MPX mode

This mode is used for adjusting the TV tuner MPX decoder section.

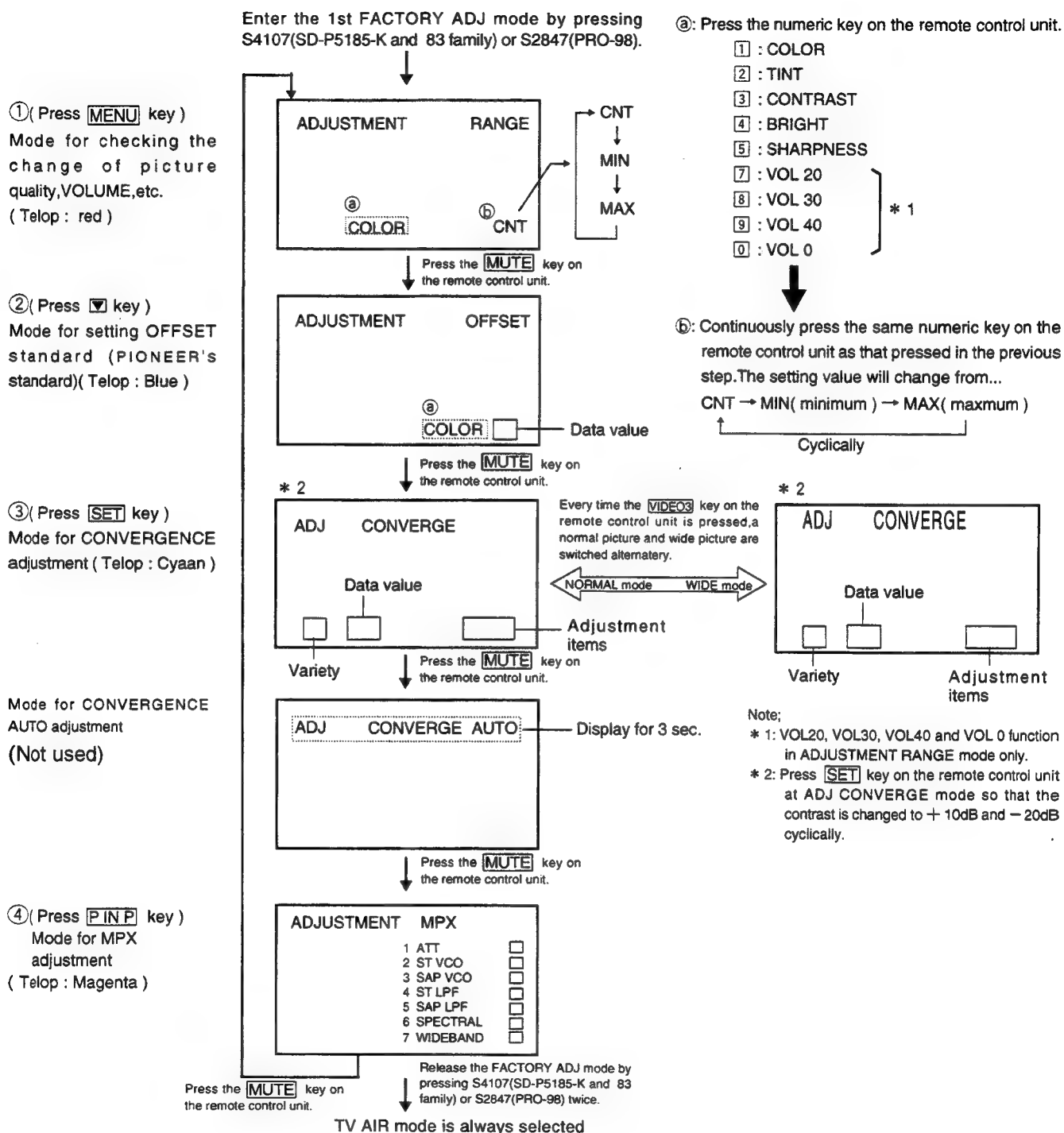


Fig. 9-4 Operating FACTORY ADJ mode

## **9.1 ADJUSTMENTS REQUIRED WHEN AN ASSEMBLY IS REPAIRED OR REPLACED**

Note: For the method of adjustment, see section "9.2 Adjustment method." A number in parentheses indicates the step number in section "9.2 Adjustment method."

### **9.1.1 When POWER SUPPLY ASSY was Repaired**

1. (Step 1) 135V power supply adjustment
2. (Step 7) Focus VR adjustment
3. (Step 9) Horizontal size adjustment
4. (Step 10) Convergence adjustment
5. (Step 12) White balance adjustment

### **9.1.2 When POWER SUPPLY ASSY was Replaced**

- Adjustments of (Step 9), (Step 10) and (Step 12)

### **9.1.3 When U-COM TUNER ASSY was Repaired**

- (1) When the video block was repaired
  1. (Step 3) Brightness adjustment
  2. (Step 12) White balance adjustment
  3. (Steps 16 through 19) Pioneer's standard settings
- (2) When the microcomputer block was repaired
  1. (Step 2) Contrast coarse adjustment
  2. (Step 3) Brightness adjustment
  3. (Step 13) Test-cross H-center position adjustment
  4. (Step 14) Blue tailing adjustment
  5. (Step 16 through 19) Pioneer's standard settings

Reset the other items such as the tuner preset channels, convergence, etc. which should be set by the user.

- (3) When the tuner block was repaired

1. (Step 15) Tuner block adjustment

- (4) When the audio block was repaired

No adjustment is required.

### **9.1.4 When U-COM TUNER ASSY was Replaced**

All the above adjustments except for the test-cross H-center position adjustment and tuner adjustment are required.

### **9.1.5 When CONVERGENCE ASSY was Repaired or Replaced**

1. (Step 8) Vertical size adjustment
2. (Step 9) Horizontal size adjustment
3. (Step 10) Convergence adjustment

### **9.1.6 When R,G or B CRT DRIVE ASSY was Repaired or Replaced**

- Check the white balance. If the white balance is not correct, perform white balance adjustment (Step 12).

### **9.1.7 When P IN P ASSY was Repaired**

1. (Step 20) Y-signal level adjustment of sub-picture
2. (Step 21) TINT adjustment of sub-picture
3. (Step 22) Color level adjustment of sub-picture
4. (Step 23) Write clock adjustment
5. (Step 24) Read clock adjustment

### **9.1.8 When P IN P ASSY was Replaced**

- No adjustment is required

### **9.1.9 When AV I/O ASSY was Repaired**

- (Step 11) Wide mute1 adjustment

### **9.1.10 When AV I/O ASSY was Replaced**

- No adjustment is required

### **9.1.11 When FRONT CONTROL ASSY was Replaced (PRO-98 only)**

- (Step 25) DPO sensitivity adjustment

### **9.1.12 When FRONT CONTROL ASSY was Replaced**

- No adjustment is required.

### **9.1.13 When RF AMP ASSY was Repaired (SD-P5185-K and PRO-98 only)**

- (Step 26) Sensitivity of remote control signal receiver adjustment

Note:

As this adjustment requires the unit checker used in factories, it cannot be performed at the servicing site.

This adjustment must be performed if RF AMP ASSY parts with the reference numbers shown below are replaced.

Therefore do not replace these parts the whole RF AMP ASSY.

| Reference No. of Parts Requiring Adjustment when Replaced. |
|--|
| IC2501, IC2502, IC2504                                     |
| TC2501   |
| C2514, C2520   |
| X2501  |

### **9.1.14 When RF AMP ASSY was Replaced**

- No adjustment is required.

### **9.1.15 When CRT ASSY R,G or B was Replaced**

Notes:

- For details on replacing a CRT ASSY, see section "10. Replacing the CRT ASSY."

- When one or two tubes were replaced, perform the adjustment referring to the tube not replaced. If a CRT ASSY for a color other than green was replaced, be sure to adjust the following items referring to the green.

1. (Step 4) Deflection yoke lean adjustment
2. (Step 5) Screen center adjustment
3. (Step 7) Focus VR adjustment
4. (Step 10) Convergence adjustment
5. (Step 12) White balance adjustment
6. (Step 16 through 19) Pioneer's standard settings

### **9.1.16 When Lens ASSY was Replaced**

1. (Step 6) Focus adjustment of Lens assembly
2. (Step 10) Convergence adjustment


### **9.1.17 When Other ASSY was Repaired or Replaced**


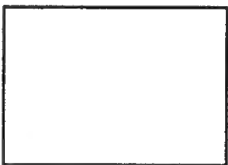
- No adjustment is required.

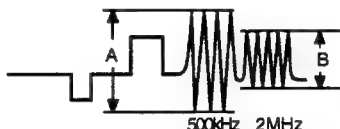

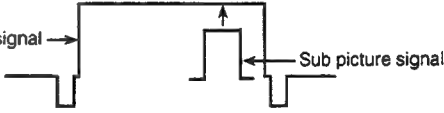


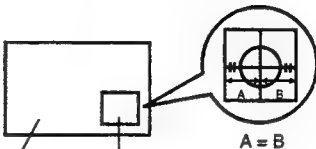
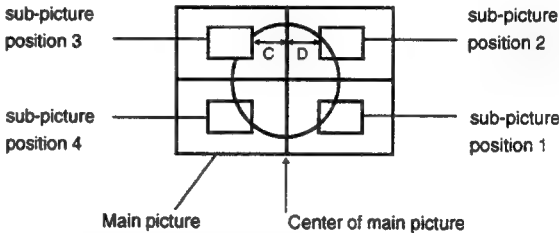
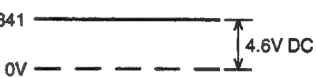
## 9.2ADJUSTMENT METHOD

- Adjustment points and test points are shown in Fig.9-6 and 9-7.
- Perform the adjustment for standard picture quality unless otherwise noted.
- For information on 1st FACTORY ADJ mode,see pages 113 through 115.


| STEP NO. | Adjustment Item                   |                       | Input Signal   | Adjustment point   | Adjustment Procedure  |
|----------|-----------------------------------|-----------------------|--|--|---|
| 1        | 135V power supply adjustment      |                       | Color bar  | VR101(S)   | Adjust the voltage at D132 cathode on the POWER SUPPLY ASSY to 135V $\pm$ 1V.   |
| 2        | Contrast coarse adjustment        |                       | —  | CONTRAST<br>(remote control unit)  | Note:Perform this adjustment only when a data memory IC (IC901:AT24C08-10PC) on a U-COM-TUNER ASSY was replaced or when the contrast of ADJUSTMENT OFFSET in FACTORY ADJ mode is extremely shifted.<br>● Activate ADJUSTMENT OFFSET mode of 1st FACTRY ADJ mode.(telop:blue)<br>● Press the [3] key on the remote control unit to select CONTRAST.<br>● Press the VOL $\boxplus$ or $\boxminus$ keys so that the telop shows about 0.   |
| 3        | PIONEER's standard settings       | Brightness adjustment | Cross hatch  | BRIGHT<br>(remote control unit)  | ● Press the [4] key on the remote control unit to select BRIGHT in ADJUSTMENT OFFSET mode of 1st FACTORY ADJ mode.<br>● Adjust the cut off level at TP-GK on the G.CRT DRIVE ASSY to 190V DC $\pm$ 1V.<br><br>cut off level<br>(190V DC)   |
| 4        | Deflection yoke lean adjustment   |                       | Cross signal (or generate a test cross signal for convergence adjustment by applying a free signal.) | Deflection yoke mounting position of replaced CRT assembly (left and right lean) | Note1: This adjustment should be done in NORMAL mode.<br>Note2: This adjustment is required when a CRT assembly and deflection yoke were replaced.<br>● Loosen the fixing screw of the deflection yoke for the color to be replaced and turn the adjustment point right and left so that the lean parts of the vertical and horizontal lines at the center of the screen align with the lines of a color not replaced.<br>● After adjustment, tighten the fixing screw for the deflection yoke.                                       |
| 5        | Screen center adjustment          |                       | Cross signal (or generate a test cross signal for convergence adjustment by applying a free signal.) | Centering magnet of the deflection yoke of replaced CRT assembly (see Fig.9-7)   | Note1: This adjustment should be done in NORMAL mode.<br>Note2: This adjustment is to adjust the center point of the screen when a CRT assembly and deflection yoke were replaced.<br>For red or blue adjustment,turn 1st FACTORY ADJ mode ON and then OFF to place the convergence POSITION at the center of the adjustable range.<br>● Move the centering magnet of the deflection yoke for the replaced color so that the horizontal and vertical lines at the center of the screen align with the lines for a color not replaced. |
| 6        | Focus adjustment of Lens assembly |                       | Cross hatch  | Lens assembly mounted to replaced CRT assembly                                   | To the adjust the lens assembly, remove the screen frame block, and attach a piece of translucent paper such as tracing paper with tape as shown in Fig.9-7.<br>● Move the lens assembly left and right as shown in Fig.9-7 until the best focusing is obtained.  |
| 7        | Focus VR adjustment               |                       | Cross hatch  | Focus VR (VR1)   | ● Turn the focus VR for best focusing.<br>● Repeat adjustments for the lens assembly and focus VR.  |

| STEP NO. | Adjustment Item   | Input Signal                          | Adjustment point  | Adjustment Prcedure  |
|----------|---|---------------------------------------|---|--|
| 8        | Vertical size adjustment  | Monoscope or general broadcasting     | NORMAL:<br>VR2601(C),<br>WIDE:<br>VR2602(C)                                 | <ul style="list-style-type: none"> <li>When a monoscope signal is used, adjust the size so that the following value is obtained.<br/>Normal mode : <math>90\% \pm 3\%</math>, Wide mode : <math>77\% \pm 3\%</math></li> <li>When general broadcasting is used, adjust the size so that the picture is completely displayed on the screen.</li> </ul> <p>Note: Perform the adjustment for a NORMAL screen, and then for a WIDE screen.</p>   |
| 9        | Horizontal size adjustment  | Monoscope or general broadcasting     | NORMAL:<br>VR2307(C),<br>WIDE:<br>VR2308(C)                                 | <ul style="list-style-type: none"> <li>When a monoscope signal is used, adjust the size so that the following value is obtained.<br/>Normal mode : <math>94\% \pm 2\%</math>, Wide mode : <math>90\% \pm 3\%</math></li> <li>When general broadcasting is used, adjust the size so that the picture is completely displayed on the screen.</li> </ul> <p>Note: Perform the adjustment for a NORMAL screen, and then for a WIDE screen.</p>   |
| 10       | Convergence adjustment  | Cross hatch                           | Adjustment using the remote control unit                                    | <ul style="list-style-type: none"> <li>Adjust so that the green cross hatch display normally appears on the screen with only the green CRT drive activated.</li> <li>Adjust the red line so that it aligns with the green line on the cross hatch screen with the green and red CRT drives activated.</li> <li>Adjust the blue line so that it aligns with a green line on the cross hatch screen with the green and blue CRT drives activated.</li> </ul> <p>Note: For details on the convergence adjustment, see section "9.4 CONVERGENCE ADJUSTMENT"</p>  |
| 11       | Wide mute1 adjustment<br>SUB U-COM adjustment 1st<br>SUB U-COM adjustment 2nd | Free video signal                     | VR1801(A)<br>VR1812(A)  | <ul style="list-style-type: none"> <li>Set the CINEMA WIDE mode to FULL CINEMA.</li> <li>Adjust VR1812 so that the left side of the image disappears.</li> <li>Turn VR1812 in the opposite direction of the above until the left side of the image appears.</li> <li>Adjust VR1801 so that the right side of the image disappears.</li> <li>Turn VR1801 in the opposite direction of the above until the right side of the image appears.</li> </ul> <div style="text-align: center;"> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Left side</p>  <p>The image disappears screen</p> </div> <div style="font-size: 2em;">→</div> <div style="text-align: center;"> <p>Right side</p>  <p>The image appears screen</p> </div> </div> </div> |
| 12       | White balance adjustment  | Color bar signal without color signal | ScreenVR(VR1),<br>VR601(U)<br>(Blue drive VR)<br>VR602(U)<br>(Red drive VR) | <ul style="list-style-type: none"> <li>Adjust the screen VR (red or blue) so that the dark part of the screen becomes gray. Do not move the screen VR(green).</li> <li>Adjust the drive VRs(red or blue) so that the bright part of the screen becomes white.</li> </ul>   |
| 13       | Test cross H-center position adjustment                                       | Free video signal                     | TC901(U)  | <ul style="list-style-type: none"> <li>Set the test cross screen for adjusting the convergence position.(For user)</li> <li>Adjust the position so that the test cross is placed at the center of the screen.</li> </ul>   |
| 14       | Blue tailing adjustment   | Cross signal                          | VR603(U)  | <ul style="list-style-type: none"> <li>Adjust the SG output of the input cross signal to maximum level.</li> <li>Set the contrast to maximum using the remote control unit.</li> <li>Turn VR603 fully counterclockwise. (Blue tailing appears)</li> <li>Adjust the vertical line of the cross on the screen so that blue tailing disappears.</li> </ul>  |

| STEP NO.  | Adjustment Item                          | Input Signal  | Adjustment point | Adjustment Prdcedure  |   |
|---|--|---|------------------|---|---|
| 15  | Tuner block adjustment                   | The audio section in the tuner block is adjusted.<br>For the items to be adjusted, see section "9.5 TUNER SECTION." |                  |   |   |
| ● Set to the ADJUSTMENT OFFSET mode of 1st FACTORYADJ mode (Telop:Blue)   |  |   |                  |   |   |
| 16  | PIONEER's standard settings              | Sharpness adjustment  | Multiburst       | SHARPNESS<br>(Remote control unit)<br><br>● Adjust the ratio of A (peak-to-peak value of 500kHz) to B (peak-to-peak value of 2 MHz)at TP-13 on the TUNER-VIDEO ASSY to A : B = 1.55 : 1<br>Adjustment screen to optimum condition.<br><br> |   |
| 17  |  | Color adjustment  | Color bar        | COLOR<br>(Remote control unit)  | Adjustment screen to optimum condition. |
| 18  |  | Tint adjustment   |                  | TINT<br>(Remote control unit)   | Adjustment screen to optimum condition. |
| 19  |  | Contrast adjustment   |                  | CONTRAST<br>(Remote control unit)   | Adjustment screen to optimum condition. |
|   | Normal video signal                      |   | —                | At the TP-BK of B.CRT assy, check that the signal is shaped as shown below.<br><br>   |   |
| ● Set the FACTORY ADJ mode to OFF and picture-in-picture function to ON.<br>● Supply the same signal to both the main and sub pictures. |  |   |                  |   |   |
| 20  | Y-signal level adjustment of sub-picture | 100% white  | VR3002(P)        | Observe the waveform at TP3501(Y) of the C CONNECTOR ASSY and adjust the 100% white position of the sub-picture so that it aligns with that of the main-picture.<br><br>  |   |
| 21  | TINT adjustment of sub-picture           | Color bar   | VR3001(P)        | Adjust the TINT of the sub-picture to optimum condition.  |   |
| 22  | Color level adjustment of sub-picture    |   | VR3003(P)        | Adjust the color level of the sub-picture to optimum condition.   |   |

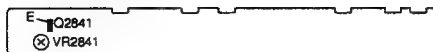
| STEP NO.   | Adjustment Item   | Input Signal     | Adjustment point | Adjustment Prdcedure   |  |                          |        |               |       |
|--|---|------------------|------------------|--|--|--------------------------|--------|---------------|-------|
| 23   | Write clock adjustment  | Monoscope signal | F3001(P)         | Adjust the position so that the center of monoscope signal is placed at the center of the sub-picture.<br><br>Main-picture      Sub-picture  |  |                          |        |               |       |
| 24   | Read clock adjustment   |                  | F3002(P)         | <ul style="list-style-type: none"><li>● Shift ( * 1) the position of sub-picture and measure the margins C at position 3 and D at position 2 from center of main-picture.</li><li>● Adjust the margins C and D so that the margins to equal.</li></ul> <br>sub-picture position 3      sub-picture position 2<br>sub-picture position 4      sub-picture position 1<br>Main picture      Center of main picture   |  |                          |        |               |       |
| 25   | DPO sensitivity adjustment (PRO -9 8 only)                      | —                | VR2841(F)        | <p>Note: This adjustment is to set the sensitivity of the DPO sensor. adjust the value as per the customer's request.<br/>The adjusting procedure at the factory is shown below for your reference.</p> <ul style="list-style-type: none"><li>● Illuminate the DPO sensor from the rectangular position to the sensor surface using an incandescent lamp with luminance of 50 lux at the sensor surface.</li><li>● Adjust the emitter voltage of Q2841 on the FRONT CONTROL ASSY to 4.6V ± 0.3V.</li></ul> <p>Emitter DC voltage of Q2841 </p> |  |                          |        |               |       |
| 26   | Sensitivity of remote control signal adjustment (PRO -9 8 only) | —                | TC2501(R)        | <p>Note:<br/>As this adjustment requires the unit checker used in factories, it cannot be performed at the servicing site.<br/>This adjustment must be performed if RF AMP ASSY parts with the reference numbers shown below are replaced.<br/>Therefore do not replace these parts the whole RF AMP ASSY.</p> <table border="1"><tr><td>Reference No. of Parts Requiring Adjustment when Replaced.</td></tr><tr><td>IC2501 , IC2502 , IC2504</td></tr><tr><td>TC2501</td></tr><tr><td>C2514 , C2520</td></tr><tr><td>X2501</td></tr></table>  | Reference No. of Parts Requiring Adjustment when Replaced. | IC2501 , IC2502 , IC2504 | TC2501 | C2514 , C2520 | X2501 |
| Reference No. of Parts Requiring Adjustment when Replaced. |   |                  |                  |  |  |                          |        |               |       |
| IC2501 , IC2502 , IC2504                                   |   |                  |                  |  |  |                          |        |               |       |
| TC2501   |   |                  |                  |  |  |                          |        |               |       |
| C2514 , C2520  |   |                  |                  |  |  |                          |        |               |       |
| X2501  |   |                  |                  |  |  |                          |        |               |       |

\* 1: To shift the position of the sub picture, use the MENU screen and remote control unit as the following:

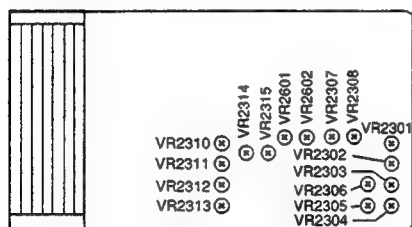
- Press **MENU** key → Set **PINP** by  ,  keys → Press **SET** key 
- Shift the position by **SET** key ← Set **SHIFT** by  ,  keys ← 



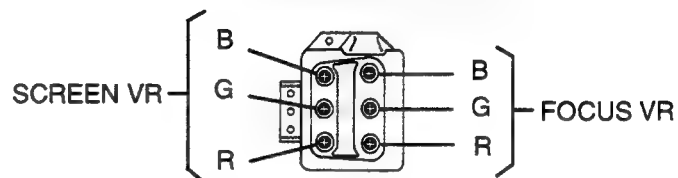
## FRONT CONTROL ASSY (PRO-98 )



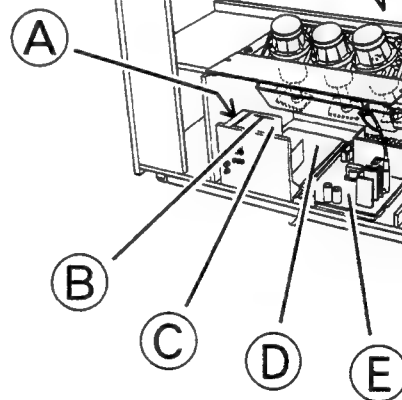
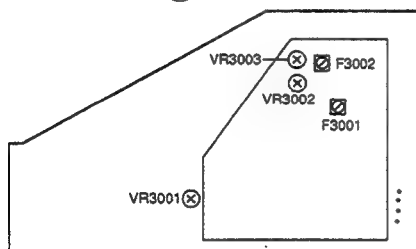
## CONVERGENCE ASSY



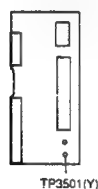
## FOCUS VR (VR1)



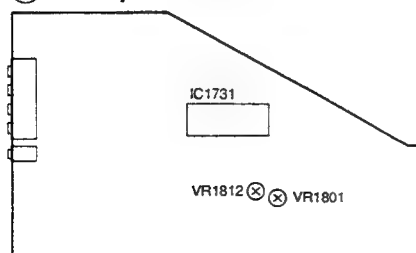
## Ⓐ P IN P ASSY



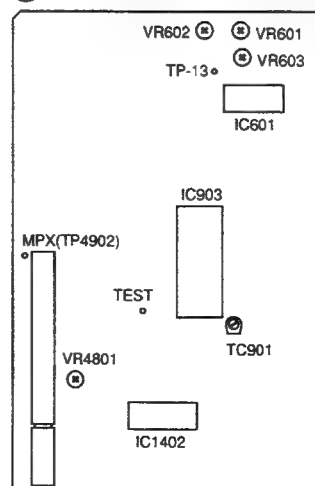
## Ⓑ C CONNECTOR ASSY



## Ⓒ AV I/O ASSY



## Ⓓ U-COM · TUNER ASSY



## Ⓔ POWER SUPPLY ASSY

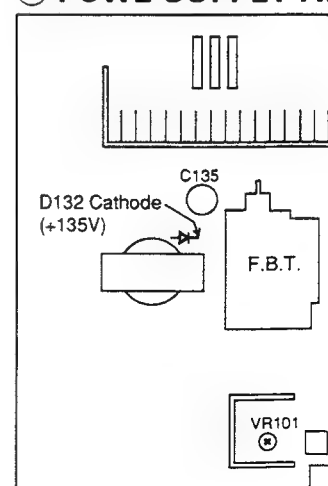


Fig.9-5 Adjustment point(1)

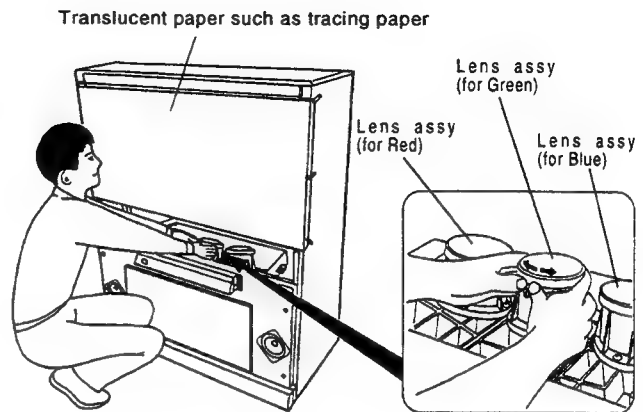
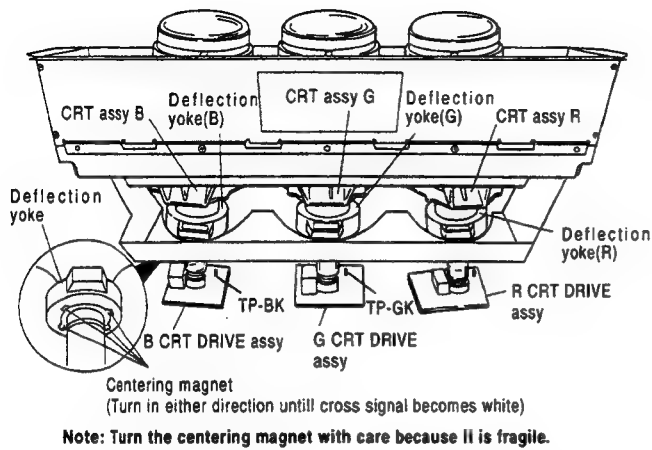


Fig.9-6 Adustment point(2)

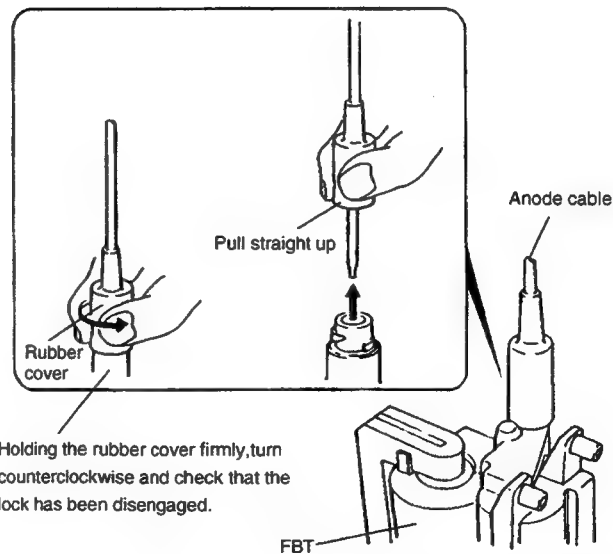
### 7.3 ANODE VOLTAGE MEASURING METHOD

Disconnect the FBT anode cable as outlined in Fig. 7-5. Measure at the point where the cable enters the FBT.

**Caution:** Take extra precaution when measuring this high voltage. High voltages are also present in surrounding circuit boards (CRT DRIVE assembly, POWER SUPPLY assembly).

#### SERVICEMAN WARNING

Before removing the anode cable, turn off the power, unplug the AC plug and let the unit discharge for more than 1 minute.



**Note:** When reconnecting the cable, proceed in the reverse order. After reconnecting, tug on the cable to check that it is secure.

Fig.9-7 Disconnecting the anode cable

## 9.4 CONVERGENCE ADJUSTMENT

### 9.4.1 Adjustment Method for Convergence

Perform the adjustment in ADJ. CONVERGE or FACTORY ADJ mode.(For how to enter the FACTORY ADJ mode,see section "FACTORY ADJ mode" on page 113.)

#### ● Green line convergence adjustment

Adjust the green line convergence with VRs on the CONVERGENCE ASSY.

#### ● Red or blue line convergence adjustment

Perform the following adjustment using the remote control unit.

##### • Operating procedure

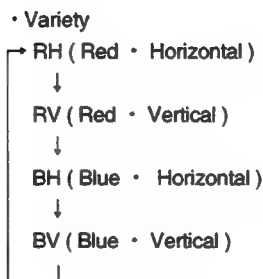
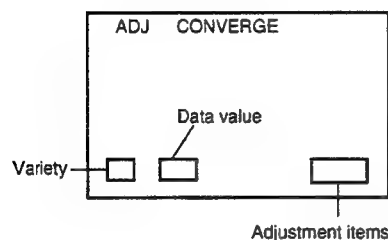
Alphabets shown in the lower-left portion of the screen indicate the type of convergence. Change the type by pressing the [ANT] (or [CH RETURN]) key on the remote control unit. Every time the [ANT] (or [CH RETURN]) key is pressed,the type changes in the order.

→ RH → RV → BH → BV → cyclically

The characters to the right of the type indicate the setting value,and can be changed with the VOL ( [ + ], [ - ] ) keys on the remote control unit. In the lower-right portion of the screen,the adjustment items are displayed. The items are assigned to the numeric keys from [0]: STATIC to [9]: SUB LIN, on the remote control unit.

#### ● To output red,green and blue separately

- To output red ON/OFF: Press the [TV] key on the remote control unit.
- To output green ON/OFF: Press the [LD] key on the remote control unit.
- To output Blue ON/OFF: Press the [VIDEO1] key on the remote control unit.



##### • Data value

Adjust the value by pressing the VOL ( [ + ], [ - ] ) keys on the remote control unit.

##### • Adjustment items

(assigned to the numeric keys)

[0] : STATIC

[1] : SKEW

[2] : BOW → 4TH BOW

[3] : SUB KEY

[4] : KEY → MID KEY

[5] : SUB PIN → M S PIN → 4 S PIN → S C PIN

[6] : PIN → MID PIN → 4TH PIN

[7] : LIN → 4TH LIN

[8] : SIZE

[9] : SUB LIN

Fig.9-8 Adjustment method for convergence

| Numeric keys | Adjustment items  | Type |    |    |    |    |    | Numeric keys | Adjustment items                    | Type |    |    |    |    |    |
|--------------|---|------|----|----|----|----|----|--------------|-------------------------------------|------|----|----|----|----|----|
|              |   | GH   | GV | RH | RV | BH | BV |              |                                     | GH   | GV | RH | RV | BH | BV |
| [0]          | STATIC  | /    | /  | ○  | ○  | ○  | ○  | [6]          | PIN<br>↓<br>MID PIN<br>↓<br>4TH PIN | VR   | VR | ○  | ○  | ○  | ○  |
| [1]          | SKEW  | /    | VR | ○  | ○  | ○  | ○  |              | [7]                                 | /    | /  | ○  | ○  | ○  | ○  |
| [2]          | BOW<br>↓<br>4TH BOW                                     | /    | VR | ○  | ○  | ○  | ○  |              |                                     | /    | /  | ○  | ○  | ○  | ○  |
| [3]          | SUB KEY   | /    | /  | ○  | ○  | ○  | ○  | [8]          | LIN<br>↓<br>4TH LIN                 | /    | /  | ○  | ○  | ○  | ○  |
| [4]          | KEY<br>↓<br>MID KEY                                     | VR   | VR | ○  | ○  | ○  | ○  |              | [9]                                 | /    | /  | ○  | ○  | ○  | ○  |
| [5]          | SUB PIN<br>↓<br>M S PIN<br>↓<br>4 S PIN<br>↓<br>S C PIN | /    | /  | ○  | ○  | ○  | ○  |              |                                     | /    | /  | ○  | ○  | ○  | ○  |
|              |   | /    | /  | ○  | ○  | ○  | ○  |              |                                     | /    | /  | ○  | ○  | ○  | ○  |
|              |   | /    | /  | ○  | ○  | ○  | ○  |              |                                     | /    | /  | ○  | ○  | ○  | ○  |
|              |   | /    | /  | ○  | ○  | ○  | ○  |              |                                     | /    | /  | ○  | ○  | ○  | ○  |

○ = yes,/ = No, VR = Adjust GH, GV with a semifixed VR.

## 9.4.2 Green Line Adjustment

- A green line is a reference line for the red and blue lines.  
Be sure to adjust precisely.
- Perform the green line adjustment with a single green color.
- For information on blocks which are referred to in some operation columns, see Fig.9-9 and 9-13.
- Adjust in ADJ. CONVERGE NORMAL mode, then in ADJ. CONVERGE WIDE mode.

| Step No. | Adjustment item  |         | Adjustment point         | Adjustment Procedure   |
|----------|--|---------|--------------------------|--|
| 1        | Center line adjustment   | GV-SKEW | VR2301 (N)<br>VR2310 (W) | Ajust so that the center horizontal line of the screen is not leaned.                |
| 2        |  | GV-BOW  | VR2302 (N)<br>VR2311 (W) | Ajust so that the center horizontal line of the screen is straight.                  |
| 3        | Repeat steps 1 and 2 to obtain the optimum center horizontal lines.        |         |                          |  |
| 4        | Distortion adjustment  | GV-PIN  | VR2304 (N)<br>VR2313 (W) | Ajust so that the horizontal lines in the E block of the screen are straight.        |
| 5        |  | GH-PIN  | VR2305 (N)<br>VR2315 (W) | Ajust so that the vertical lines in the B and C blocks on the screen are straight.   |
| 6        | Lean adjustment  | GV-KEY  | VR2303 (N)<br>VR2312 (W) | Ajust so that the horizontal lines in the E block of the screen are not leaned.      |
| 7        |  | GH-KEY  | VR2306 (N)<br>VR2314 (W) | Ajust so that the vertical lines in the B and C blocks on the screen are not leaned. |
| 8        | Repeat steps 4 through 7 and then 1 through 7 to obtain the optimum lines. |         |                          |  |

Note; (N) : At ADJ. CONVERGE NORMAL  
(W) : At ADJ. CONVERGE WIDE

### 9.4.3 Red line Adjustment

- Adjust the red line convergence using a green line and red line.
- Adjust it by overlaying a red line on a green line using the VOL (  $\oplus$  ,  $\ominus$  ) keys on the remote control unit so that the line becomes yellow.

- For information on blocks which are referred to in some operation columns, see Fig.9-9 and 9-13.
- Adjust in ADJ. CONVERGE NORMAL mode, then in ADJ. CONVERGE WIDE mode.
- After making the adjustments for all items, perform fine adjustment referring to the whole screen.

#### ● Red Adjustment in the Horizontal Direction

| Step No. | Adjustment item   |            | Adjustment Procedure   |
|----------|---|------------|--|
| 1        | Center line adjustment  | RH-SKEW    | Ajust so that the center vertical line of the screen is not leaned.  |
| 2        |   | RH-BOW     | Adjust so that the center vertical line of screen is not distorted and is straight.  |
| 3        |   | RH-4TH BOW |  |
| 4        |   | RH-STATIC  | Converge the center vertical line in the green vertical line.  |
| 5        | Repeat steps 1 through 4 to obtain the optimum center vertical line.  |            |  |
| 6        | Lean adjustment   | RH-SUB KEY | Adjust so that the vertical lines in the B and C blocks of the screen.   |
| 7        |   | RH-KEY     |  |
| 8        | Repeat steps 6 and 7 to obtain vertical lines that are most perfectly vertical in the B and C blocks of the screen. |            |  |
| 9        | Distortion adjustment   | RH-M S PIN | Adjust so that the vertical lines in the right and left sections of the screen are not distorted and are straight.                     |
| 10       |   | RH-SUB PIN |  |
| 11       |   | RH-4 S PIN |  |
| 12       |   | RH-MID PIN |  |
| 13       |   | RH-PIN     |  |
| 14       |   | RH-4TH PIN |  |
| 15       | Repeat steps 9 through 14 to obtain straight vertical lines in the right and left sections of the screen.           |            |  |
| 16       | Repeat steps 6 through 15 to obtain the optimum vertical lines in the right and left sections of the screen.        |            |  |
| 17       | Line intervals adjustment   | RH-4TH LIN | Adjust the intervals of the vertical lines in the right and left sections of the screen and converge them in the green vertical lines. |
| 18       |   | RH-LIN     |  |
| 19       |   | RH-SIZE    |  |
| 20       |   | RH-SUB LIN |  |
| 21       | Repeat steps 17 through 20 to obtain the optimum vertical lines in the right and left sections of the screen.       |            |  |
| 22       | Fine-adjust over the entire picture to obtain the optimum picture.  |            |  |

#### ● Red Adjustment in the Vertical Direction

| Step No. | Adjustment item   |            | Adjustment Procedure  |
|----------|---|------------|---|
| 1        | Center line adjustment  | RV-SKEW    | Adjust so that the center horizontal line of the screen is not leaned.  |
| 2        |   | RV-BOW     | Adjust so that the center horizontal line of the screen is not distorted and is straight.   |
| 3        |   | RV-STATIC  | Converge the center horizontal line in the green horizontal line.   |
| 4        | Repeat steps1 through 3 to obtain the optimum center horizontal line.   |            |   |
| 5        | Lean adjustment   | RV-MID KEY | Adjust so that the horizontal lines in the D and E blocks of the screen are not leaned.   |
| 6        |   | RV-SUB KEY |   |
| 7        |   | RV-KEY     |   |
| 8        | Repeat steps 5 and 7 to obtain the horizontal lines that are most perfectly horizontal in the D and E blocks of the screen. |            |   |
| 9        | Distortion adjustment   | RV-SUB PIN | Adjust so that the horizontal lines in the upper and lower sections of the screen are not distorted and are straight.             |
| 10       |   | RV-MID PIN |   |
| 11       |   | RV-PIN     |   |
| 12       |   | RV-S C PIN |   |
| 13       |   | RV-4TH PIN |   |
| 14       | Repeat steps 9 throught 13 to obtain straight horizontal lines in the upper and lower sections of the screen.               |            |   |
| 15       | Repeat steps 5 throught 14 to obtain the optimum horizontal lines in the upper and lower sections of the screen.            |            |   |
| 16       | Line intervals adjustment   | RV-LIN     | Adjust the intervals of the horizontal lines in the D and E blocks of the screen and converge them in the green horizontal lines. |
| 17       |   | RV-SIZE    |   |
| 18       |   | RV-SUB LIN |   |
| 19       | Repeat steps 16 through 18 to obtain the optimum horizontal lines in the upper and lower sections of the screen.            |            |   |
| 20       | Fine-adjust over the entire picture to obtain the optimum picture.  |            |   |



### 9.4.4 Blue line Adjustment

- Adjust the blue line convergence using a green line and blue line.
- Adjust it by overlaying a blue line on a green line using the VOL (  $\oplus$  ,  $\ominus$  ) keys on the remote control unit so that the line becomes cyan.
- For information on blocks which are referred to in some operation columns, see Fig.9-9 and 9-13.
- Adjust in ADJ. CONVERGE NORMAL mode, then in ADJ. CONVERGE WIDE mode.
- After making the adjustments for all items, perform fine adjustment referring to the whole screen.

#### ● Blue Adjustment In the Horizontal Direction

| Step No. | Adjustment item   |            | Adjustment Procedure   |
|----------|---|------------|--|
| 1        | Center line adjustment  | BH-SKEW    | Adjust so that the center vertical line of the screen is not leaned.   |
| 2        |   | BH-BOW     | Adjust so that the center vertical line of screen is not distorted and is straight.  |
| 3        |   | BH-4TH BOW |  |
| 4        |   | BH-STATIC  | Converge the center vertical line in the green vertical line.  |
| 5        | Repeat steps 1 through 4 to obtain the optimum center vertical line.  |            |  |
| 6        | Lean adjustment   | BH-SUB KEY | Adjust so that the vertical lines in the B and C blocks of the screen are not leaned.  |
| 7        |   | BH-KEY     |  |
| 8        | Repeat steps 6 and 7 to obtain vertical lines that are most perfectly vertical in the B and C blocks of the screen. |            |  |
| 9        | Distortion adjustment   | BH-M S PIN | Adjust so that the vertical lines in the right and left sections of the screen are not distorted and are straight.                     |
| 10       |   | BH-SUB PIN |  |
| 11       |   | BH-4 S PIN |  |
| 12       |   | BH-MID PIN |  |
| 13       |   | BH-PIN     |  |
| 14       |   | BH-4TH PIN |  |
| 15       | Repeat steps 9 through 14 to obtain straight vertical lines in the right and left sections of the screen.           |            |  |
| 16       | Repeat steps 6 through 15 to obtain the optimum vertical lines in the right and left sections of the screen.        |            |  |
| 17       | Line intervals adjustment   | BH-4TH LIN | Adjust the intervals of the vertical lines in the right and left sections of the screen and converge them in the green vertical lines. |
| 18       |   | BH-LIN     |  |
| 19       |   | BH-SIZE    |  |
| 20       |   | BH-SUB LIN |  |
| 21       | Repeat steps 17 through 20 to obtain the optimum vertical lines in the right and left sections of the screen.       |            |  |
| 22       | Fine-adjust over the entire picture to obtain the optimum picture.  |            |  |

#### ● Blue Adjustment In the Vertical Direction

| Step No. | Adjustment item   |            | Adjustment Procedure  |
|----------|---|------------|---|
| 1        | Center line adjustment  | BV-SKEW    | Adjust so that the center horizontal line of the screen is not leaned.  |
| 2        |   | BV-BOW     | Adjust so that the center horizontal line of the screen is not distorted and is straight.   |
| 3        |   | BV-STATIC  | Converge the center horizontal line in the green horizontal line.   |
| 4        | Repeat steps 1 through 3 to obtain the optimum center horizontal line.  |            |   |
| 5        | Lean adjustment   | BV-MID KEY | Adjust so that the horizontal lines in the D and E blocks of the screen are not leaned.   |
| 6        |   | BV-SUB KEY |   |
| 7        |   | BV-KEY     |   |
| 8        | Repeat steps 5 and 7 to obtain the horizontal lines that are most perfectly horizontal in the D and E blocks of the screen. |            |   |
| 9        | Distortion adjustment   | BV-SUB PIN | Adjust so that the horizontal lines in the upper and lower sections of the screen are not distorted and are straight.             |
| 10       |   | BV-MID PIN |   |
| 11       |   | BV-PIN     |   |
| 12       |   | BV-S C PIN |   |
| 13       |   | BV-4TH PIN |   |
| 14       | Repeat steps 9 through 13 to obtain straight horizontal lines in the upper and lower sections of the screen.                |            |   |
| 15       | Repeat steps 5 through 14 to obtain the optimum horizontal lines in the upper and lower sections of the screen.             |            |   |
| 16       | Line intervals adjustment   | BV-LIN     | Adjust the intervals of the horizontal lines in the D and E blocks of the screen and converge them in the green horizontal lines. |
| 17       |   | BV-SIZE    |   |
| 18       |   | BV-SUB LIN |   |
| 19       | Repeat steps 16 through 18 to obtain the optimum horizontal lines in the upper and lower sections of the screen.            |            |   |
| 20       | Fine-adjust over the entire picture to obtain the optimum picture.  |            |   |

### 9.4.5 Picture Movements in Horizontal Adjustments

The adjustments in the horizontal direction are performed by applying the convergence correction signals to the horizontal deflection and changing the amount of the correction. With these adjustments, the vertical lines will move.

This section describes the picture movements and the adjusting points when adjusting each item using a cross hatch signal input.

See Fig. 9-9 for reference, in which each of the sections to the right and left of the center vertical line of the screen are divided into three blocks to describe the picture movements.

#### ● Center-line adjustment in the Horizontal Direction

See Table 9-1 for the picture movements and general information on this adjustment.

This adjustment consists of H-SKEW, H-BOW, H-4TH BOW and H-STATIC to correct the overall picture. Adjust the center vertical line so that it is not distorted and is straight and perfectly vertical.

The center vertical line does not move when adjusting the other items. Use the center vertical line set through this adjustment as reference for the other adjustments. After adjusting the center line, adjust the screen sections to the right and left of the center line.

Note that there may be some deviation in the overall picture if this adjustment is performed alone. Finely adjust the picture with subsequent adjustments.

#### Caution

Be sure to adjust H-STATIC by changing the data value within the range (010 to -010) of the telop indication in CONVER ADJ mode of FACTORY ADJ mode. If this range is exceeded, the convergence assembly may be damaged. If the adjustment is not possible within the range of 010 to -010, set the data value to 0, turn the centering magnet of the deflection yoke and fine-adjust H-STATIC.

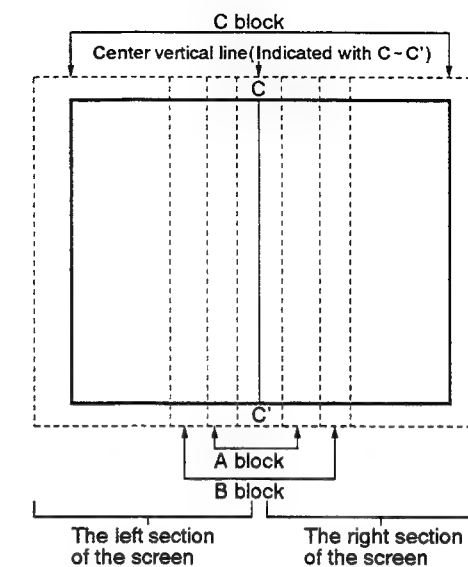


Fig. 9-9 Screen Divisions for Horizontal Adjustment

Table 9-1 Center-line Adjustment in the Horizontal Direction

| Item           | Deviating Picture | Corrected Picture | Deviating Picture | Attention Point on the Screen During Adjustment | Adjustment Point  | Remarks   |
|----------------|-------------------|-------------------|-------------------|---|---|---|
| H-STATIC<br>*1 |                   |                   |                   | Center vertical line                            | Move the vertical line at the attention point on the screen shown in the figure to the left to converge it in the green line which has been set for reference. This provides the reference position of the center vertical line for the convergence adjustment. | The overall picture moves in parallel in the same manner as with the user-convergence adjustment.   |
| H-SKEW         |                   |                   |                   | Center vertical line                            | Eliminate the lean at the attention point on the screen shown in the figure to the left.  | The lean of the overall picture is corrected. As shown in the figure to the left, the overall picture is leaned.  |
| H-BOW          |                   |                   |                   | Center vertical line                            | Adjust so that the bowed line at the attention point on the screen shown in the figure to the left is straight.   | The bowed lines over the overall screen are corrected. All the vertical lines are bowed as shown in the figure to the left.                             |
| H-4TH BOW      |                   |                   |                   | Center vertical line                            | Adjust so that the wavy line in the attention-point on the screen shown in the figure to the left is straight.  | The waving (fourth-order) distortion over the overall screen is corrected. As shown in the figure to the left, the whole picture is distorted in waves. |

\*1: H-STATIC can be shifted for convenience while adjusting the other items. Be sure to adjust the other items in consideration of the shift in H-STATIC and then readjust H-STATIC. (Be sure to shift it within the telop indication range of 010 to -010.)

● Lean Adjustment in the Horizontal Direction

See Table 9-2 for the picture movements and general information on this adjustment.  
The right and left sections of the screen are corrected with H-SUB KEY and H-KEY. Adjust the lean in the B and C blocks on the screen to eliminate.

Table 9-2 Lean adjustment in the Horizontal direction

| Item      | Deviating Picture | Corrected Picture Screen | Deviating Picture | Attention Point on the Screen During Adjustment | Adjustment Point   | Remarks  |
|-----------|-------------------|--------------------------|-------------------|---|--|--|
| H-SUB KEY |                   |                          |                   | B and C blocks                                  | Adjust to eliminate any lean at the attention-point blocks on the screen shown in the figure to the left. If the lean cannot be eliminated, set the screen to the status in which H-KEY has deviation as shown in Fig. 9-10, and adjust H-KEY. | The lean in the B and C blocks on the screen is corrected.<br>The right and left sections of the screen move in the same direction.              |
| H-KEY     |                   |                          |                   | B and C blocks                                  | Adjust to eliminate the lean in the attention-point blocks on the screen shown in the figure to the left.  | The lean in the the B and C blocks on the screen is corrected.<br>The right and left sections move symmetrically in relation to the center line. |

Note:  
▶ : Line which does not move.

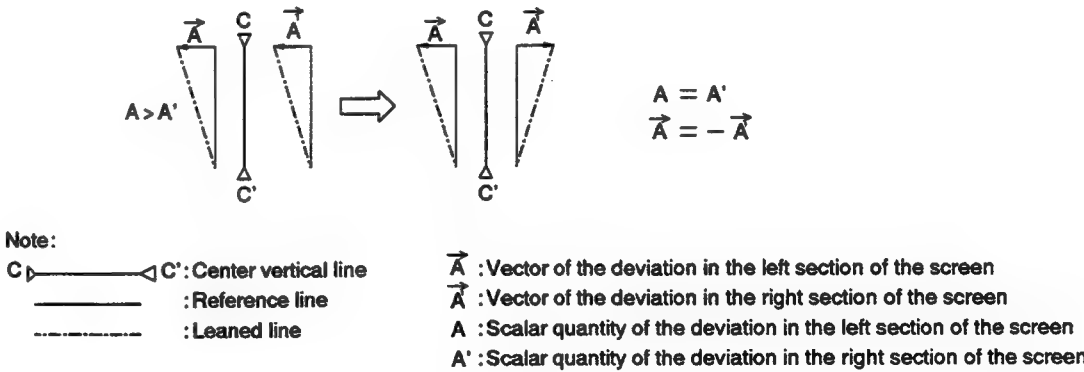


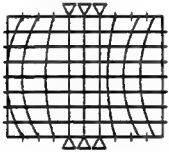
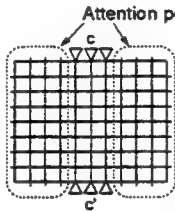
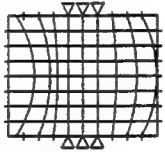
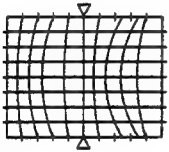
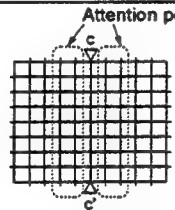
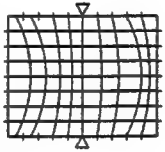
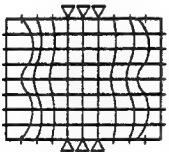
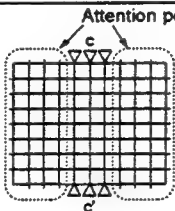
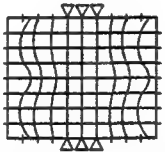
Fig. 9-10 Example of H-SUB KEY

● Distortion Adjustment in the Horizontal Direction (1)

See Table 9-3 for the picture movements and general information on this adjustment.

In this adjustment, the distortion on the screen is corrected with H-M S PIN, H-SUB PIN and H-4 S PIN while moving the right and left sections in the same direction. Adjust them so that the distortion in the right and left sections is eliminated and the vertical lines in both sections are straight. If straight lines cannot be obtained, first set the picture to the status in which it is symmetrically distorted and then adjust H-MID PIN, H-PIN and H-4TH PIN.

Table 9-3 Distortion Adjustment in the Horizontal Direction (1)

| Item            | Deviating Picture   | Corrected Picture  | Deviating Picture   | Attention Point on the Screen During Adjustment | Adjustment Point   | Remarks  |
|-----------------|---|--|---|---|--|--|
| H-SUB PIN<br>*1 |    |   |    | B and C blocks<br>(Especially C block)          | Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight. | The bowed lines are corrected centering the C block on the screen.<br>As shown in the figure to the left, the lines in the C block move more than those in the B block. The lines in the right and left sections move in the same direction. |
| H-M S PIN<br>*1 |  |  |  | A and B blocks<br>(Especially B block)          | Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight. | The bowed lines are corrected centering the B block on the screen.<br>As shown in the figure to the left, the B block move more than the C block. The right and left sections move in the same direction.                                    |
| H-4 S PIN       |  |  |  | B and C blocks                                  | Adjust so that any wavy lines in the attention-point blocks on the screen shown in the figure to the left are straight.  | The wavy lines (fourth-order) are corrected in the B and C blocks on the screen.<br>The right and left sections move in the same direction.  |

\*1: H-SUB PIN and H-M S PIN work relative to each other. Be sure to adjust them alternately.

Note:  
▷ : Line which does not move.

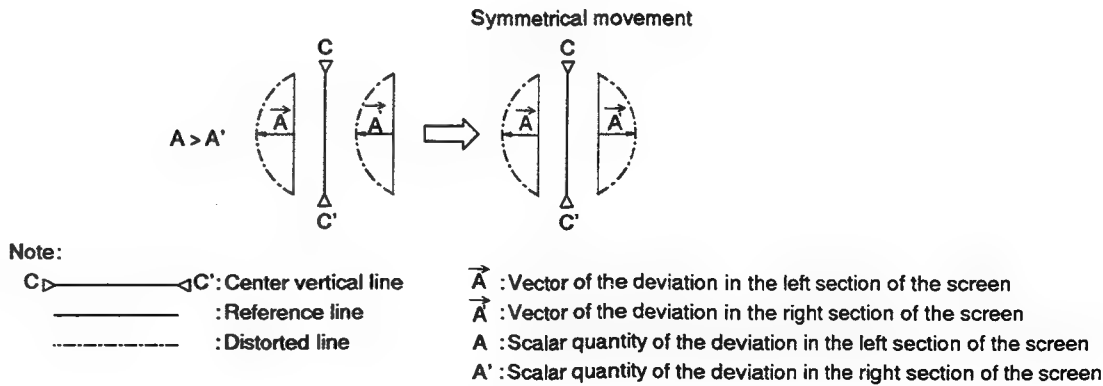


Fig. 9-11 Example of Distortion Adjustment in the Horizontal Direction (1)

● Distortion Adjustment in the Horizontal Direction (2)

See Table 9-4 for the picture movements and general information on this adjustment.  
In this adjustment, the distortion on the screen is corrected with H-MID PIN, H-PIN and H-4TH PIN while moving the right and left sections of the screen symmetrically in relation to the center line. Adjust so that the distortion in the right and left sections is eliminated and the vertical lines in both sections are straight.

Table 9-4 Distortion Adjustment in the Horizontal Direction (2)

| Item            | Deviating Picture | Corrected Picture | Deviating Picture | Attention Point on the Screen During Adjustment | Adjustment Point   | Remarks  |
|-----------------|-------------------|-------------------|-------------------|---|--|--|
| H-PIN<br>*1     |                   |                   |                   | B and C blocks<br>(Especially C block)          | Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight. | The bowed lines are corrected centering the C block on the screen.<br>As shown in the figure to the left, the C block move more than the B block. And the right and left sections move symmetrically in relation to the center line. |
| H-MID PIN<br>*1 |                   |                   |                   | A and B blocks<br>(Especially B block)          | Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight. | The bowed lines are corrected centering the B block on the screen.<br>As shown in the figure to the left, the B block move more than the C block. And the right and left sections move symmetrically in relation to the center line. |
| H-4TH PIN       |                   |                   |                   | B and C blocks                                  | Adjust so that any wavy lines in the attention-point blocks on the screen shown in the figure to the left are straight.  | The wavy lines (fourth-order) are corrected in the B and C blocks on the screen.<br>As shown in the figure to the left, and the right and left sections move symmetrically in relation to the center line.                           |

\*1 : H-PIN and H-MID PIN work relative to each other. Be sure to adjust them alternately.

Note:  
◁ : Line which does not move.



● Line-Interval Adjustment in the Horizontal Direction

See Table 9-5 for the picture movements and general information on this adjustment.  
In this adjustment, the intervals of the vertical lines are corrected with H-4TH LIN, H-LIN, H-SIZE and H-SUB LIN. Converge the vertical lines in the right and left sections of the screen in the green vertical lines which have been set for reference.  
The differences between H-LIN, H-4TH LIN, H-SIZE and H-SUB LIN are shown in Table 9-6.

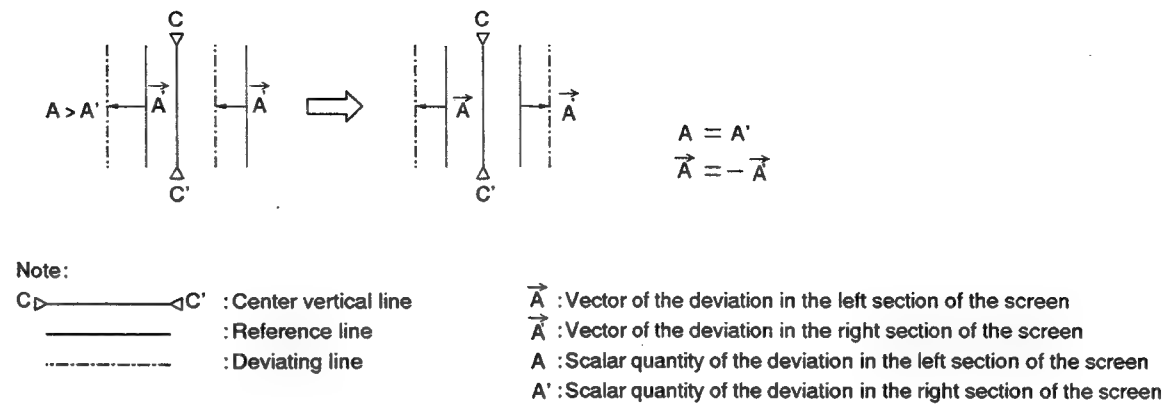


Fig. 9-12 Example of Line-Interval Adjustment in the Horizontal Direction

Table 9-6 Difference Between Adjustment Items

| Item                 | Screen Example | Remarks   |
|----------------------|----------------|---|
| H-4TH LIN and H-LIN  |                | H-4TH LIN and H-LIN should be adjusted when the right and left sections of the screen show deviation in the same direction.                         |
| H-SIZE and H-SUB LIN |                | H-SIZE and H-SUB LIN should be adjusted when the right and left sections of the screen show deviation symmetrically in relation to the center line. |

Table 9-5 Line-Interval Adjustment in the Horizontal Direction

| Item            | Deviating Picture | Corrected Picture | Deviating Picture | Attention Point on the Screen During Adjustment | Adjustment Point   | Remarks  |
|-----------------|-------------------|-------------------|-------------------|---|--|--|
| H-LIN<br>*1     |                   |                   |                   | B and C blocks                                  | Observe the movements with H-SIZE and H-SUB LIN and move the lines in the right and left sections in the opposite directions to the same extent. (See Fig. 9-12.)      | The line intervals are corrected centering the C block on the screen.<br>As shown in the figure to the left, the lines in the right and left sections of the screen move centering the respective C block.   |
| H-4TH LIN<br>*1 |                   |                   |                   | A and B blocks<br>(Especially B block)          | Observe the movements with H-SIZE and H-SUB LIN and move the lines in the right and left sections in the opposite directions to the same extent. (See Fig. 9-12.)      | The line intervals are corrected centering the A and B blocks on the screen.<br>As shown in the figure to the left, the lines in the right and left sections of the screen move centering the respective A and B block.                            |
| H-SIZE<br>*2    |                   |                   |                   | A, B and C blocks                               | Converge the vertical lines in the green vertical lines which have been set for reference.   | The line intervals in the right and left sections (A, B and C blocks) of the screen are corrected.<br>As shown in the figure to the left, the line intervals in the right and left sections of the screen change with the center line as the axis. |
| H-SUB LIN<br>*2 |                   |                   |                   | B block   | Converge the vertical lines in the attention-point blocks on the screen shown in the figure to the left in the green vertical lines which have been set for reference. | The line intervals in the B block on the screen are corrected.<br>As shown in the figure to the left, the lines in the center of B block of the right and left sections move in the same manner as with H-SIZE.                                    |

\*1: H-4TH LIN and H-LIN work relative to each other. Be sure to adjust them alternately.  
\*2: When convergence in the green lines is achieved with H-4TH LIN and H-LIN, further adjustments with H-SIZE and H-SUB LIN are not necessary.

Note:

- : Line which does not move at all.
- : Line which hardly moves.
- : Line which does not move out of the screen.

9.4.6 Picture Movements in Vertical Adjustments

The adjustments in the vertical direction are performed by applying the convergence correction signals to the vertical deviation to change the amount of correction. With these adjustments, the horizontal lines will move.

This section describes the picture movements and the adjusting points when adjusting each item using a cross hatch input.

See Fig. 9-13 for reference, in which each of the sections above and below the center horizontal line of the screen are divided into two blocks to describe the picture movements.

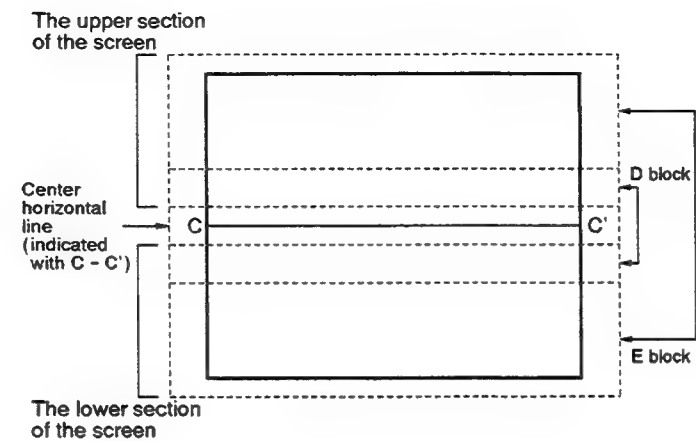


Fig. 9-13 Screen Divisions for Vertical Adjustments

● Center-line Adjustment in the Vertical Direction

See Table 9-7 for the picture movements and general information on this adjustment.

This adjustment consists of V-SKEW, V-BOW and V-STATIC to correct the overall picture. Adjust the center horizontal line so that it is not distorted and is straight and perfectly horizontal. The center horizontal line does not move when adjusting the other items. Use the center horizontal line set through this adjustment as the reference for the other adjustments. After adjusting the center line, adjust the screen sections above and below the center line. Note that there may be some deviation in the overall picture if this adjustment is performed alone. Finely adjust the picture with subsequent adjustments.

**Caution**

Be sure to adjust V-STATIC by changing the data value within the range (010 to -010) of the telop indication in CONVER ADJ mode of FACTORY ADJ mode.

If this range is exceeded, the convergence assembly may be damaged. If the adjustment is not possible within the range of 010 to -010, set the data value to 0, turn the centering magnet of the deflection yoke and fine-adjust V-STATIC.

Table 9-7 Center-line Adjustment in the Vertical Direction

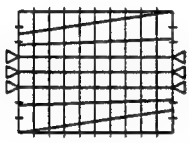
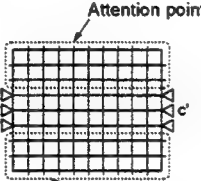
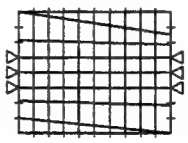
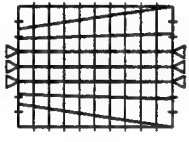
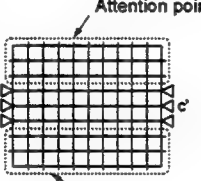
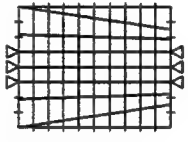
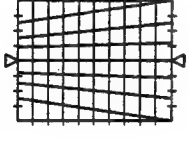
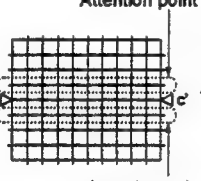
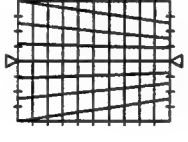
| Item           | Deviating Picture | Corrected Picture | Deviating Picture | Attention Point on the Screen During Adjustment | Adjustment Point  | Remarks   |
|----------------|-------------------|-------------------|-------------------|---|---|---|
| V-STATIC<br>*1 |                   |                   |                   | Center horizontal line                          | Move the horizontal line at the attention point on the screen shown in the figure to the left to converge it in the green line which has been set for the reference. This provides the reference position of the center horizontal line for the convergence adjustment. | The overall picture moves in parallel in the same manner as with the user-convergence adjustment.                     |
| V-SKEW         |                   |                   |                   | Center horizontal line                          | Eliminate the lean at the attention point on the screen shown in the figure to the left.  | The lean of the overall picture is corrected. As shown in the figure to the left, the overall picture is leaned.      |
| V-BOW          |                   |                   |                   | Center horizontal line                          | Adjust so that the bowed line at the attention point on the screen shown in the figure to the left is straight.   | The bowed lines over the screen are corrected. All the horizontal lines are bowed as shown in the figure to the left. |

\*1: V-STATIC can be shifted for convenience while adjusting the other items. Be sure to adjust the other items in consideration of the shift in V-STATIC and then readjust V-STATIC. (Be sure to shift it within the telop indication range of 010 to -010.)

● Lean Adjustment in the Vertical Direction

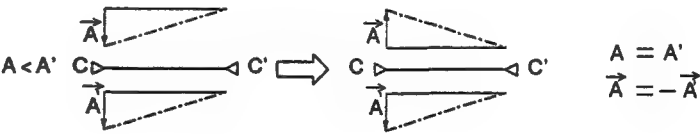
See Table 9-8 for the picture movements and general information on this adjustment.  
In this adjustment, lean of the picture is corrected. Adjust V-SUB KEY, V-MID KEY and V-KEY to eliminating any lean in the upper and lower sections of the screen.

Table 9-8 Lean Adjustment in the Vertical Direction

| Item         | Deviating Picture   | Corrected Picture  | Deviating Picture   | Attention Point on the Screen During Adjustment | Adjustment Point   | Remarks   |
|--------------|---|--|---|---|--|---|
| V-SUB KEY    |    |    |    | E block   | Adjust to eliminate the lean in the attention-point blocks on the screen shown in the figure to the left. If the lean cannot be eliminated, set the screen to the status in which V-KEY has deviation as shown in Fig. 9-14, and adjust V-KEY. | The lean in the E block of the screen is corrected.<br>The lines in the upper and lower sections of the screen move in the same direction.  |
| V-KEY *1     |   |   |   | E block   | Adjust to eliminate the lean in the attention-point blocks on the screen shown in the figure to the left.  | First adjust V-MID KEY so that the lean in the D block is eliminated.<br>Then adjust V-SUB KEY and V-KEY so that the lean in the E block is eliminated.<br>Repeat these adjustments until any lean in the upper and lower sections of the screen is eliminated. |
| V-MID KEY *1 |  |  |  | D block   | Adjust to eliminate any lean at the attention-point blocks on the screen shown in the figure to the left.  | The lean in the upper and lower sections (D and E blocks) of the screen is corrected.<br>The upper and lower sections move symmetrically in relation to the center line.  |

\*1: V-MID KEY and V-KEY work relative to each other. Be sure to adjust them alternately.

Note:  
◁ : Line which does not move.



Note:  
◁ : Center horizontal line  
— : Reference line  
- - - : Leaned line  
 $\vec{A}$  : Vector of the deviation in the upper section of the screen  
 $\vec{A'}$  : Vector of the deviation in the lower section of the screen  
 $A$  : Scalar quantity of the deviation in the upper section of the screen  
 $A'$  : Scalar quantity of the deviation in the lower section of the screen

Fig. 9-14 Example of Vertical Lean Adjustment

● Distortion Adjustment in the Vertical Direction

See Table 9-9 for the picture movements and general information on this adjustment.

In this adjustment, distortion on the screen is corrected. While adjusting V-SUB PIN, the upper and lower sections of the screen move in the same direction. While adjusting V-MID PIN, V-PIN, V-S C PIN and V-4TH PIN, the upper and lower sections move symmetrically in relation to the center line. Adjust them so that the distortion in the upper and lower sections of the screen is eliminated and the horizontal lines in both sections are straight.

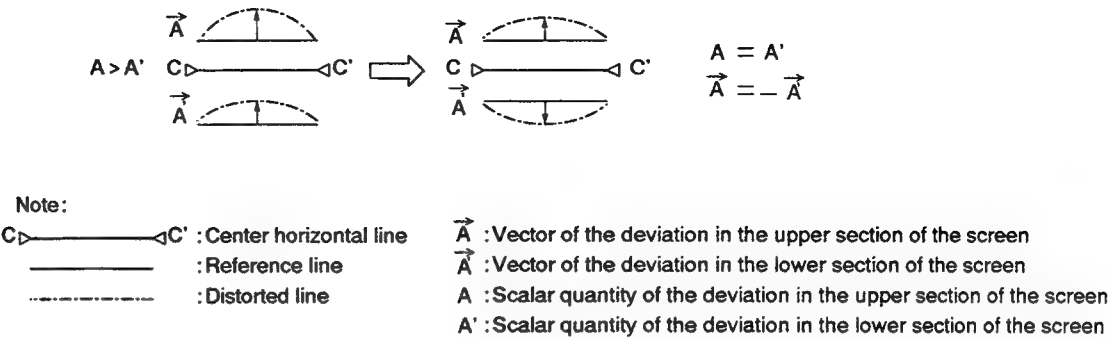


Fig. 9-15 Example of V-SUB PIN Adjustment

Table 9-9 Distortion Adjustment in the Vertical Direction

| Item      | Deviating Picture | Corrected Picture | Deviating Picture | Attention Point on the Screen During Adjustment  | Adjustment Point   | Remarks   |
|-----------|-------------------|-------------------|-------------------|--|--|---|
| V-SUB PIN |                   |                   |                   | E block  | Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight.<br>If straight lines cannot be obtained, move the upper and lower sections as shown in Fig. 9-15 in the opposite directions to the same extent from the center horizontal line. Adjust with V-PIN so that the lines are straight. | The bowed lines are corrected in the E block of the screen.<br>As shown in the figure to the left, the upper and lower sections move in the opposite directions.  |
| V-S C PIN |                   |                   |                   | E block  | Adjust so that any wavy lines in the attention-point blocks on the screen shown in the figure to the left are straight.  | The wavy lines (third-order) are corrected in the E block on the screen.<br>As shown in the figure to the left, the upper and lower sections move symmetrically in relation to the center line.<br><br>The bowed lines are corrected in the E block on the screen.<br>As shown in the figure to the left, the upper and lower sections move symmetrically in relation to the center line.<br><br>The bowed lines are corrected on the center line side of E block on the screen.<br>As shown in the figure to the left, the upper and lower sections move symmetrically in relation to the center line.<br><br>The wavy lines (fourth-order) are corrected in the upper and lower sections (D and E blocks) of the screen.<br>As shown in the figure to the left, the upper and lower sections move symmetrically in relation to the center line. |
| V-PIN     |                   |                   |                   | E block  | Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight.   |   |
| V-MID PIN |                   |                   |                   | D block and the center line side of E block.<br>(Especially the center line side of the E block) | Adjust so that any bowed lines in the attention-point blocks on the screen shown in the figure to the left are straight.   |   |
| V-4TH PIN |                   |                   |                   | D and E blocks   | Adjust so that any wavy lines in the attention-point blocks on the screen shown in the figure to the left are straight.  |   |

Note: : Line which does not move at all.

● Line-Interval Adjustment in the Vertical Direction

See Table 9-10 for the picture movements and general information on this adjustment.

In this adjustment, the intervals of the horizontal lines in the upper and lower sections of the screen are corrected with V-LIN, V-SIZE and V-SUB LIN. Converge the horizontal lines in the upper and lower sections of the screen in the green horizontal lines which have been set for reference.

The differences between V-LIN, V-SIZE and V-SUB LIN are shown in Table 9-11.

Table 9-11 Difference Between Adjustment Items

| Item                 | Screen Example | Remarks  |
|----------------------|----------------|--|
| V-LIN                |                | V-LIN should be adjusted when the upper and lower sections of the screen show deviation in the same direction.   |
| V-SIZE and V-SUB LIN |                | V-SIZE and V-SUB LIN should be adjusted when the upper and lower sections of the screen show the upper and lower sections move symmetrically in relation to the center line. |

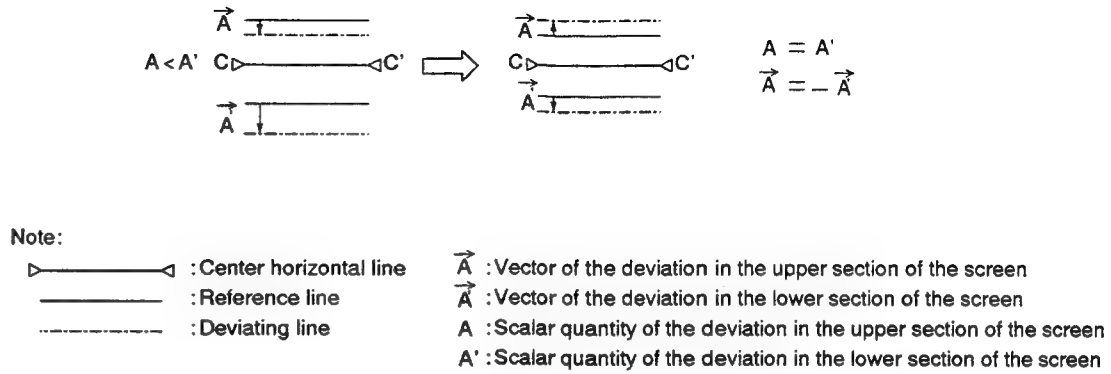


Fig. 9-16 Example of V-LIN Adjustment

Table 9-10 Line-Interval Adjustment in the Vertical Direction

| Item      | Deviating Picture | Corrected Picture | Deviating Picture | Attention Point on the Screen During Adjustment | Adjustment Point  | Remarks   |
|-----------|-------------------|-------------------|-------------------|---|---|---|
| V-LIN     |                   |                   |                   | E block   | Observe the movements with V-SIZE and V-SUB LIN and move the lines in the upper and lower sections in the opposite directions to the same extent. (See Fig. 9-16.)<br>When the convergence on the green lines is achieved, further adjustments with V-SIZE and V-SUB LIN are not necessary. | The line intervals are corrected centering the D and E blocks on the screen.<br>As shown in the figure to the left, the lines in the upper and lower sections of the screen move centering the respective E block.                                |
| V-SIZE    |                   |                   |                   | D and E blocks                                  | Converge the horizontal lines in the green horizontal lines which have been set for the reference.  | The line intervals in the upper and lower sections (D and E blocks) of the screen are corrected.<br>As shown in the figure to the left, the line intervals in the upper and lower sections of the screen change with the center line as the axis. |
| V-SUB LIN |                   |                   |                   | D block   | Converge the horizontal lines in the attention-point sections in the green horizontal lines which have been set for reference.  | The line intervals in the D block on the screen are corrected.<br>As shown in the figure to the left, the lines in the upper and lower sections move centering the respective D block in the same manner as with V-SIZE.                          |

Note:

- Line which does not move at all.
- Line which hardly moves.
- Line which does not move out of screen.



9.5 TUNER SECTION

- No adjustment required when replacing the assembly.
- Perform the adjustment after the video and control section adjustments.
- Connection diagram is referred to Fig. 9-18.
- Adjustment points and test points are shown in Fig. 9-6.
- Perform the adjustment set to the TEST mode (Note 1).
- Perform the adjustment by using the channel 9 unless otherwise noted.
- Video and audio input signals are described in the below.

Ⓝ ; No signal  
Video signal  
V ① ; f<sub>v</sub> = EIA color bar, 60 dB  $\mu$  V  
Audio signal (STEREO);  
dbx noise reduction ON, PRE-EMPHASIS ON

S ① ; f<sub>a</sub> = 300Hz,30% MOD,  
Lch(or R ch) only, 54dB  $\mu$  V  
S ② ; f<sub>a</sub> = 5KHz, 30% MOD  
Lch(or R ch) only, 54dB  $\mu$  V

Note 1 ;

How to set the TEST mode.  
● Short-circuit TP-TEST and GND in the TUNER-VIDEO assembly.  
● Disconnect the AC power cord from the AC outlet, then connect it again.  
How to release the TEST mode.  
● Release the short-circuit TP-TEST and GND in the TUNER-VIDEO assembly.  
● Disconnect the AC power cord from the AC outlet, then connect it again.

Video system

| Step No. | Adjustment Item        | Input signal |       | Adjustment Point | Adjustment Procedure   |
|----------|------------------------|--------------|-------|------------------|--|
|          |                        | Video        | Audio |                  |  |
| 1        | Video level adjustment | V ①          | Ⓝ     | VR 4801 (T)      | Adjust the output of the VIDEO REC terminal on the rear panel to 2Vp-p $\pm$ 0.15V (Not 75 $\Omega$ terminated.) |

Audio system

| Step No. | Adjustment Item | Input signal |       | Adjustment Point    | Adjustment Procedure  |
|----------|-----------------|--------------|-------|---------------------|---|
|          |                 | Video        | Audio |                     |   |
| 1        | STEREO VCO      | Ⓝ            | Ⓝ     | Remote control unit | <ul style="list-style-type: none"><li>● Press the numeric key [2] of the remote control unit for ST VCO adjustment mode.</li><li>● Measure the Rch output frequency of the OUTPUT REC terminal and adjust with the VOL <math>\boxplus</math> and <math>\boxminus</math> keys so that the frequency becomes closest to the 62.936kHz.</li></ul>  |
| 2        | SAP VCO         | Ⓝ            | Ⓝ     | Remote control unit | <ul style="list-style-type: none"><li>● Connect the Q4806 base to GND and input the 78.67 kHz ; 147 mVrms signal to TP-MPX(TP4902).</li><li>● Press the numeric key [3] of the remote control unit.</li><li>● Wait until "COMPLETE!" is displayed at part ④ of the screen (see Fig. 9-17).</li><li>● If "TRY AGAIN!!" is displayed, adjust again using the following method.<ol style="list-style-type: none"><li>1. Press the VOL <math>\boxplus</math> and <math>\boxminus</math> keys and adjust so that the value at part ⑥ of the screen (see Fig. 9-17) becomes 21, 25, 29 or 2D.</li><li>2. Press the VOL <math>\boxminus</math> key slowly once at a time until the value at part ⑥ of the screen changes from 21, 25, 29 or 2D to a different value.</li><li>3. Press the VOL <math>\boxplus</math> key slowly once at a time while counting it until the value at part ⑥ of the screen changes from 21, 25, 29 or 2D to a different value.</li><li>4. Press the VOL <math>\boxminus</math> for half the number of times counted.</li><li>5. If the counted number is odd, subtract 1 from it and press the VOL <math>\boxminus</math> key for half of the resultant number.</li></ol></li></ul> |

| Step No. | Adjustment Item  | Input signal |       | Adjustment Point    | Adjustment Procedure   |
|----------|--|--------------|-------|---------------------|--|
|          |  | Video        | Audio |                     |  |
| 3        | STEREO LPF adjustment                                    | Ⓝ            | Ⓝ     | Remote control unit | <ul style="list-style-type: none"><li>● Connect the Q4806 base to GND and input the 9.4 kHz ; 600 mVrms signal to TP-MPX(TP4902).</li><li>● Press the numeric key [4] of the remote control unit.</li><li>● Wait until "COMPLETE!" is displayed at part ④ of the screen (see Fig. 9-17).</li><li>● If "TRY AGAIN!!" is displayed, adjust again using the following method.<ol style="list-style-type: none"><li>1. Press the VOL <math>\boxplus</math> and <math>\boxminus</math> keys and adjust so that the value at part ⑥ of the screen (see Fig. 9-17) becomes 3X.</li><li>2. Press the VOL <math>\boxminus</math> key slowly once at a time until the value at part ⑥ of the screen changes from 3X to a different value.</li><li>3. Press the VOL <math>\boxplus</math> key slowly once at a time while counting it until the value at part ⑥ of the screen changes from 3X to a different value.</li><li>4. Press the VOL <math>\boxminus</math> for half the number of times counted.</li><li>5. If the counted number is odd, subtract 1 from it and press the VOL <math>\boxminus</math> key for half of the resultant number.</li></ol></li></ul>  |
| 4        | SAP LPF adjustment                                       | Ⓝ            | Ⓝ     | Remote control unit | <ul style="list-style-type: none"><li>● Connect the Q4806 base to GND and input the 88 kHz ; 120 mVrms signal to TP-MPX(TP4902).</li><li>● Press the numeric key [5] of the remote control unit.</li><li>● Wait until "COMPLETE!" is displayed at part ④ of the screen (see Fig. 9-17).</li><li>● If "TRY AGAIN!!" is displayed, adjust again using the following method.<ol style="list-style-type: none"><li>1. Press the VOL <math>\boxplus</math> and <math>\boxminus</math> keys and adjust so that the value at part ⑥ of the screen (see Fig. 9-17) becomes X1, X3, X5 or X7.</li><li>2. Press the VOL <math>\boxminus</math> key slowly once at a time until the value at part ⑥ of the screen changes from X1, X3, X5 or X7 to a different value.</li><li>3. Press the VOL <math>\boxplus</math> key slowly once at a time while counting it until the value at part ⑥ of the screen changes from X1, X3, X5 or X7 to a different value.</li><li>4. Press the VOL <math>\boxminus</math> for half the number of times counted.</li><li>5. If the counted number is odd, subtract 1 from it and press the VOL <math>\boxminus</math> key for half of the resultant number.</li></ol></li></ul> |
| 5        | * Separation adjustment (WIDEBAND)                       | V ①          | S ①   | Remote control unit | <ul style="list-style-type: none"><li>● Press the numeric key [7] of the remote control unit.</li><li>● Adjust the output of the OUTPUT REC terminal on the rear panel to minimum level. (Adjust the R ch level becomes mimimun at the Lch input and the Lch level becomes minimum at the Rch input.)</li></ul>  |
| 6        |  |              |       |                     |  |
| 7        | Repeat step 5 and 6 to obtained best separation.         |              |       |                     |  |
| 8        | * Separation adjustment (SPECTRAL)                       | V ①          | S ②   | Remote control unit | <ul style="list-style-type: none"><li>● Press the numeric key [8] of the remote control unit.</li><li>● Adjust the output of the OUTPUT REC terminal on the rear panel to minimum level. (Adjust the R ch level becomes mimimun at the Lch input and the Lch level becomes minimum at the Rch input.)</li></ul>  |
| 9        |  |              |       |                     |  |
| 10       | Repeat step 8 and 9 to obtained best separation.         |              |       |                     |  |
| 11       | Repeat step 5 , 6 , 8 and 9 to obtained best separation. |              |       |                     |  |

\* : When performing the separation adjustment, be sure to perform WIDE BAND adjustment first.

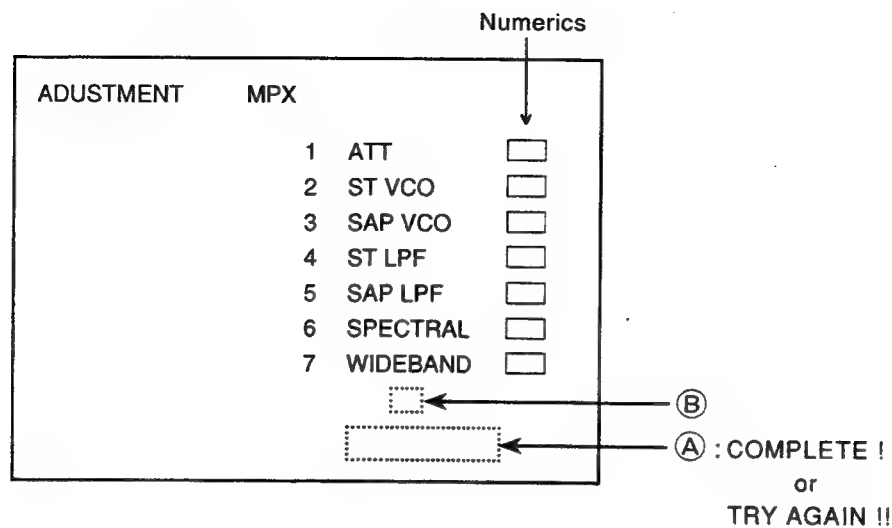


Fig. 9-17 Display of ADJUSTMENT MPX mode screen

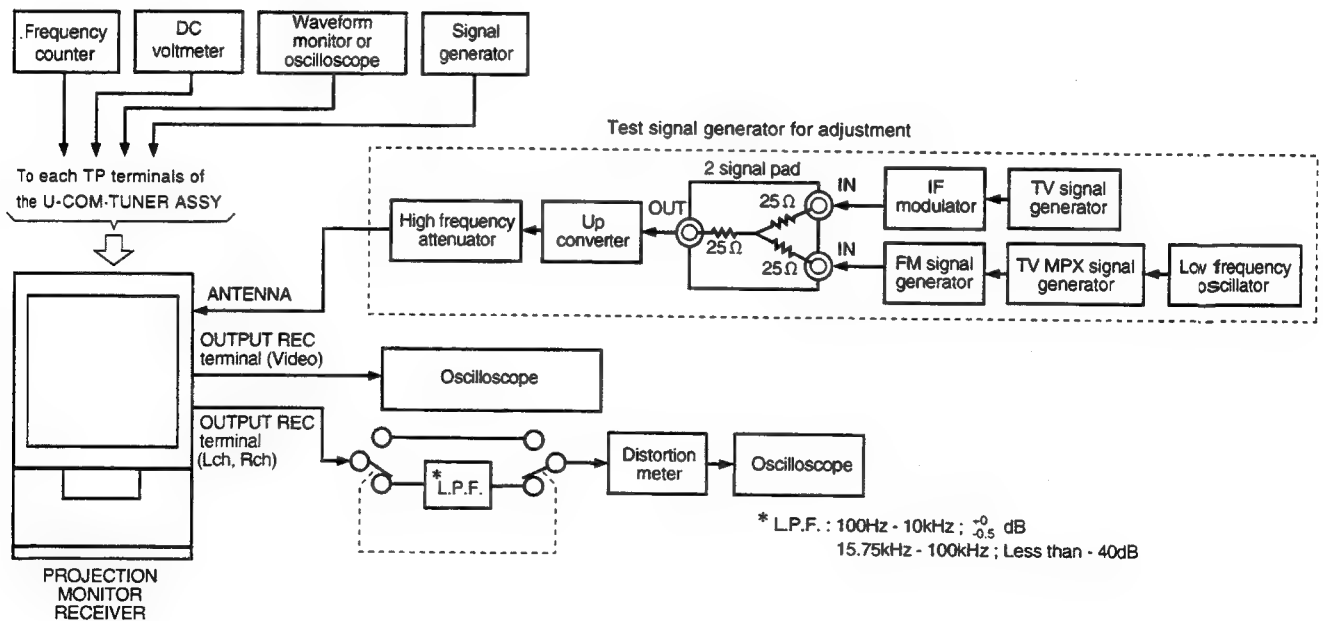


Fig. 9-18 Connection diagram when adjusting the tuner section

10. REPLACING THE CRT ASSY

**Serviceman Warning**

When replacing the CRT assy,turn off the power,unplug the AC plug and let the unit discharge for more than 1 minute.

The anode cables of the CRT assy R,G and B in PRO-JECTION MONITOR RECEIVER are connected in series as shown in Fig. 1.

When repracing the CRT assy,the anode cable have to be cut.

**Note:**

Since the anode cables for the CRT assy to service supplies are only available in half lengths,either cut longer lengths, or join older lengths of cable to ensure that the original cable length is used.

Table 1 Cable disconnecting methods

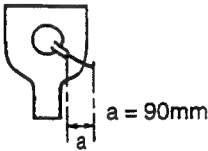
| Cable   | Replacement CRT assy   |  |  |
|---------|--|--|--|
|         | When CRT assy B is replaced                                    | When CRT assy G is replaced                                    | When CRT assy R is replaced  |
| Cable ㉑ | —  | —  | Disconnect the anode cable from the FBT.<br>(Refer to “7.3 ANODE VOLTAGE MEASURING METHOD” ) |
| Cable ㉒ | Leave it as is.  | Cut a place 20mm from the exact center towards the CRT assy G. | Cut a place 20mm from the exact center towards the CRT assy R.                               |
| Cable ㉓ | Cut a place 20mm from the exact center towards the CRT assy B. | Cut a place 20mm from the exact center towards the CRT assy G. | Leave it as is.  |

Note: Do not cut other cables by mistake.

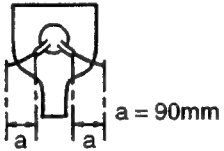
7.1 WHEN REPLACING THE CRT ASSY

Unplug the AC plug and let the unit discharge for more than 1 minute,then cut the anode cable according to Table 1.

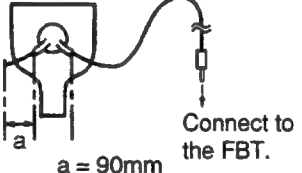
Each CRT assy supplied as a spare part is as shown below.



CRT ASSY B



CRT ASSY G



CRT ASSY R

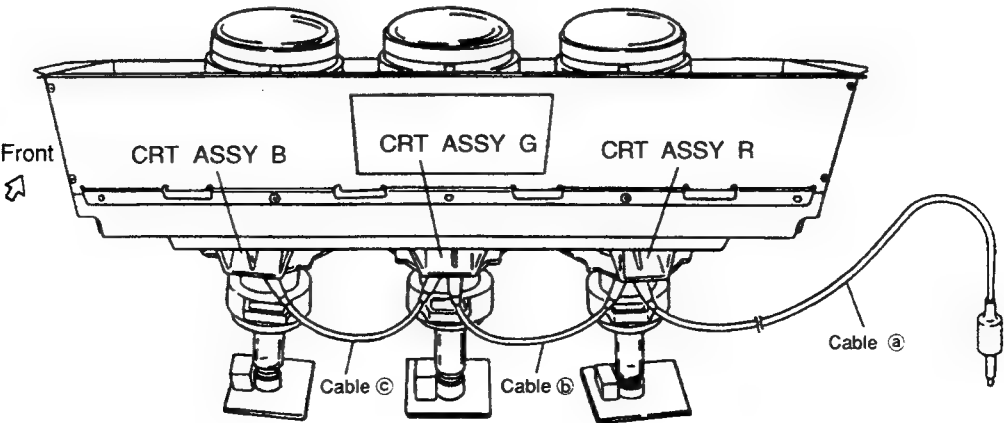
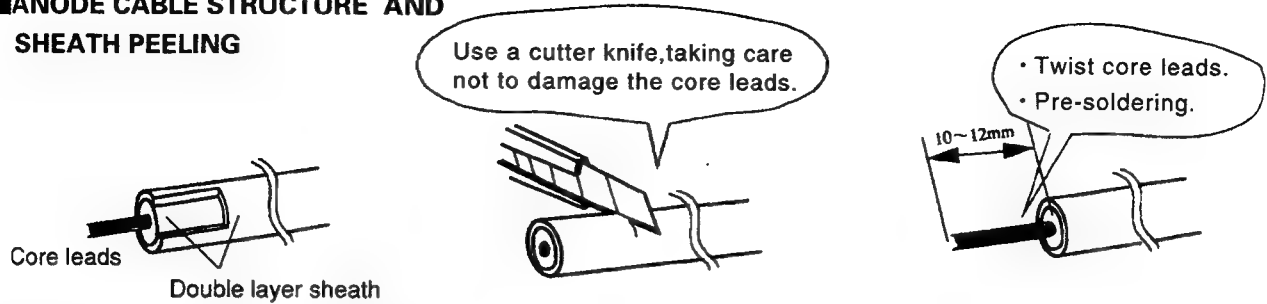


Fig. 1 Connection diagram of the CRT assemblies

## ANODE CABLE STRUCTURE AND SHEATH PEELING

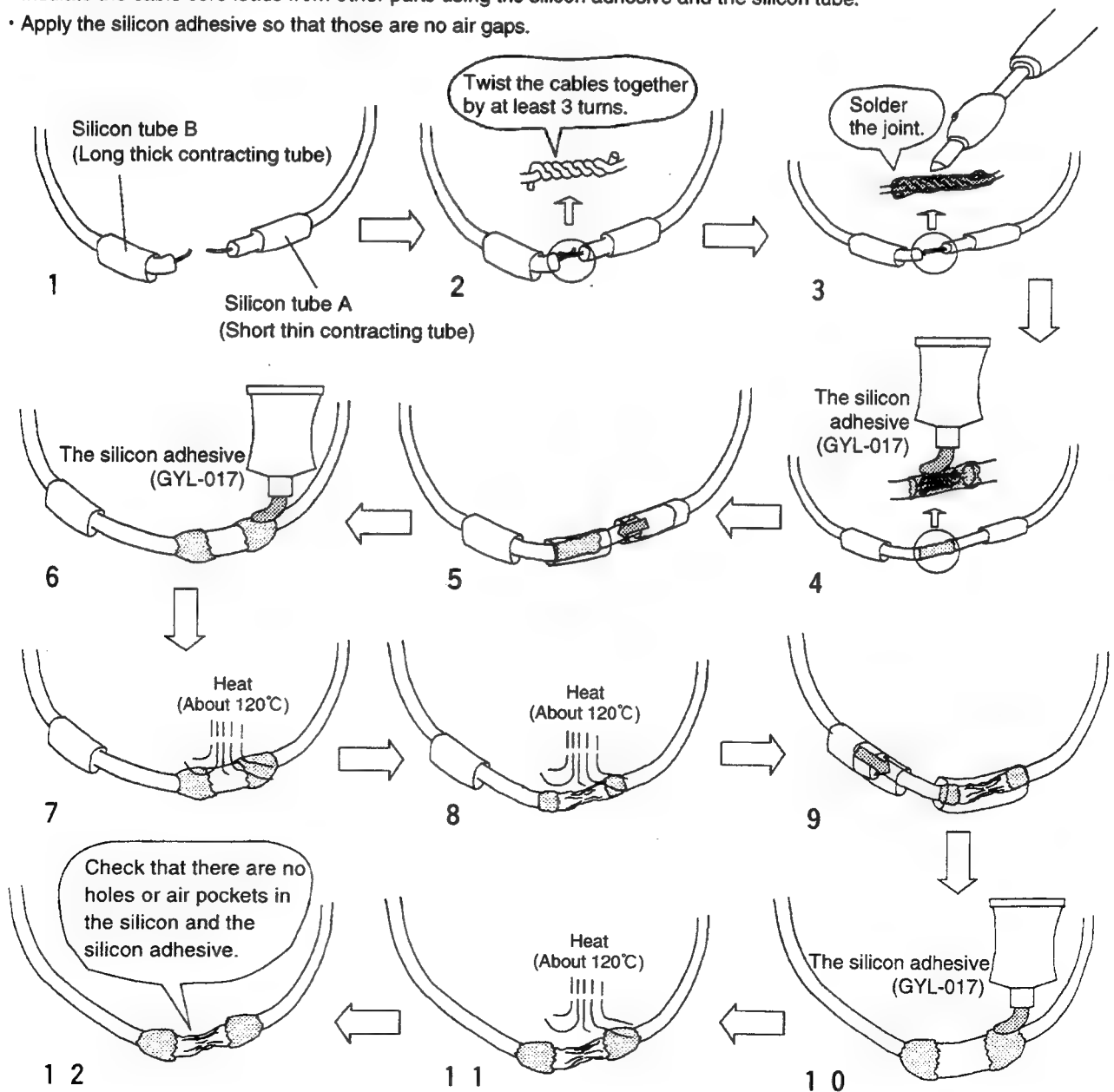


## ANODE CABLE JOINING PROCEDURE

(The silicon tube is packed with CRT ASSY. For the silicon adhesive, be sure to use silicon adhesive part number GYL-017.)

●CAUTION When connecting the anode cable, pay attention to the following.

- Take care not damage the anode cable sheath.
- Insulate the cable core leads from other parts using the silicon adhesive and the silicon tube.
- Apply the silicon adhesive so that there are no air gaps.



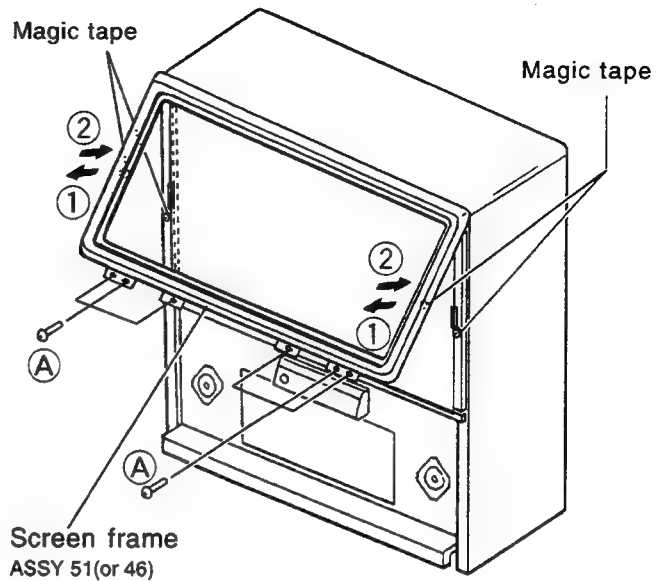
## 11. DISASSEMBLY

### ● REMOVAL OF SCREEN FRAME ASSY 51(or 46)

1. Remove the six stopper screws (A) of the screen frame ASSY 51(or 46)
2. Pull the magic tape of the screen frame ASSY 51(or 46) in arrow directions ① to bring it away from the cabinet.
3. Remove the screen frame ASSY 51(or 46) upwards.

### ● MOUNTING OF SCREEN FRAME ASSY 51(or 46)

1. Hook the top part of the screen frame ASSY 51(or 46) and attach it.
2. Push the magic tape of the screen frame ASSY 51(or 46) in arrow directions ② to fix it to the cabinet.
3. Fix the six stopper screws (A) of the screen frame ASSY 51(or 46).

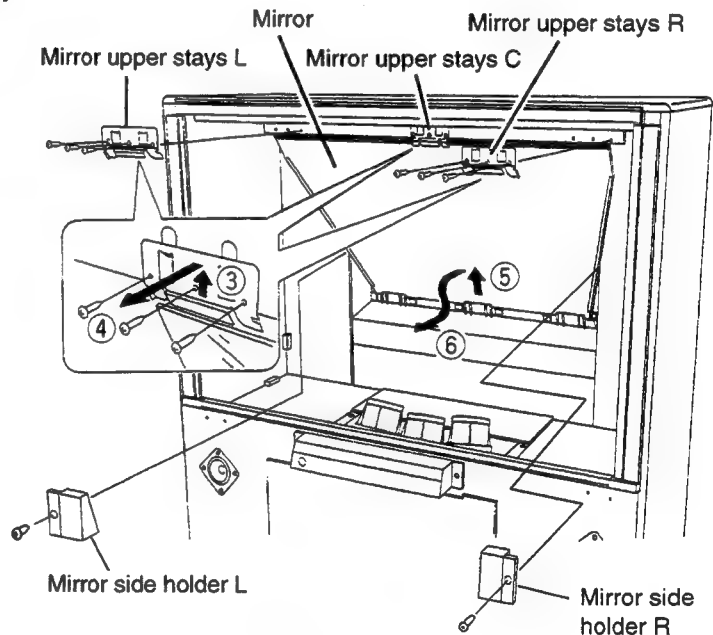


### ● PRECAUTION ON REMOVAL OF THE MIRROR CASE

The mirror is held by mirror upper stays L, R, and C in the cabinet assembly, and the mirror under stay attached to the mirror case.

The mirror may be dropped and damaged when removing only the mirror case. When removing the mirror for servicing, proceed as follows.

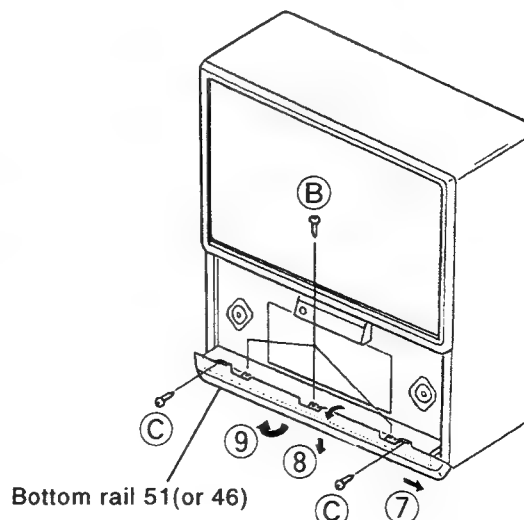
1. Remove the screen.
2. Remove the mirror upper stays L and R at upper left and right of the mirror.
3. Remove the mirror side holder L and R.
4. Support the mirror by the hand and remove the mirror upper stay C at upper center of the mirror.  
To remove the mirror upper stays L, R and C, remove the stopper screws, push and lift them along the bar of the cabinet assembly (in the direction of arrow ③), and pull them out toward you (in the direction of arrow ④).
5. Lift and remove the bottom of the mirror (in the direction of arrow ⑤), and remove the mirror in the direction of arrow ⑥.



### ● REMOVAL OF BOTTOM RAIL 51(or 46)

(SD-P5185-K and 83 family only)

1. Remove the three stopper screws (B) and two stopper screws (C) of the bottom rail 51(or 46).
2. Slide the bottom rail 51(or 46) in arrow direction ⑦.
3. Remove the bottom rail 51(or 46) while rotating its top part in arrow direction ⑧ and bring it down.
4. Remove the bottom rail 51(or 46) while rotating its bottom part in arrow direction ⑨ and bring it towards you.







## 13. IC INFORMATION

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

### ■ PD5300A (IC1731)

#### • CLOSED CAPTION SIGNAL DETECTOR AND CHARACTER DECODER

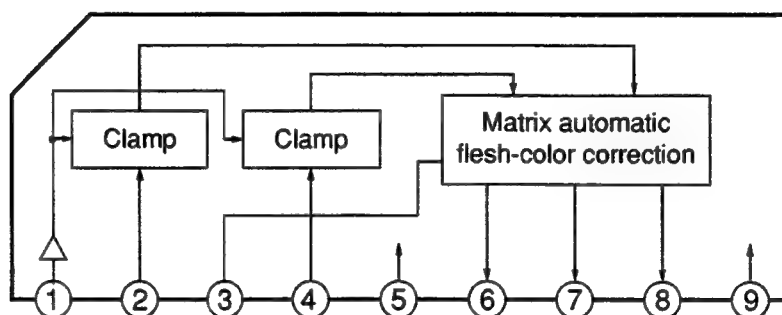
##### • Pin Function

Note ) I : CMOS input O : CMOS output N : N ch open drain output

| No. | Name     | I/O | Function   | No. | Name     | I/O | Function  |
|-----|----------|-----|--|-----|----------|-----|---|
| 1   | HSYNC    | I   | Horizontal sync. signal input.   | 27  | VCC      | I   | +5V power supply voltage  |
| 2   | VSNC     | I   | Vertical sync. signal input.   | 28  | OSC2     | O   | Input/output pins of the clock generator circuit for OSD.<br>Connect the 12MHz ceramic resonator. |
| 3   | R IN     | I   | R input  | 29  | OSC1     | I   |   |
| 4   | G IN     | I   | G input  | 30  | RESET    | I   | Reset input. Input "L" for reset.   |
| 5   | B IN     | I   | B input  | 31  | NOT USED | I   | +5V pull-up   |
| 6   | BLK IN   | I   | Blanking input   | 32  |          |     |   |
| 7   | NOT USED | I   | 5V pull-up   | 33  |          |     |   |
| 8   |          |     |  | 34  |          |     |   |
| 9   |          |     |  | 35  |          |     |   |
| 10  |          |     |  | 36  |          |     |   |
| 11  |          |     |  | 37  |          |     |   |
| 12  |          |     |  | 38  |          |     |   |
| 13  |          |     |  | 39  |          |     |   |
| 14  |          |     |  | 40  |          |     |   |
| 15  | CC ENB   | I   | Serial data enable input   | 41  |          |     |   |
| 16  | SIN      | I   | Serial data input  | 42  |          |     |   |
| 17  | SCLK     | I   | Serial clock input   | 43  |          |     |   |
| 18  | NOT USED | I   | GND pull-down  | 44  |          |     |   |
| 19  | VHOLD    | —   | For data slicer (VHOLD-VSS 0.1 $\mu$ F)  | 45  |          |     |   |
| 20  | VIN      | I   | For data slicer (VIN-VOUT 0.1 $\mu$ F)   | 46  |          |     |   |
| 21  | VOUT     | O   |  | 47  |          |     |   |
| 22  | CVIN     | I   | Video input for data slicer  | 48  |          |     |   |
| 23  | CNVSS    | I   | GND  | 49  | BLK OUT  | O   | Blanking output   |
| 24  | XIN      | I   | Input/output pins of the main clock generation circuit.<br>Connect the 8MHz ceramic resonator. | 50  | B OUT    | O   | B output  |
| 25  | XOUT     | O   |  | 51  | G OUT    | O   | G output  |
| 26  | VSS      | I   | GND  | 52  | R OUT    | O   | R output  |

# TA8647S (IC603) VIDEO SIGNAL PROCESSOR

## Block Diagram



## Pin Fuction

| No. | NAME     | FUNCTION   |
|-----|----------|--|
| 1   | FBP IN   | Inputs fly-back pulse. DC-clamps input signals during this pulse period.   |
| 2   | B – Y IN | Inputs B–Y signals   |
| 3   | ON/OFF   | Switch for automatic flesh-color correction.<br>The automatic flesh-color correction is turned ON when a voltage to this pin is lower than 1.4V. |
| 4   | R – Y IN | Inputs R–Y signals   |
| 6   | B – Y    | Inputs B–Y signals   |
| 7   | R – Y    | Inputs R–Y signals   |
| 8   | G – Y    | Inputs G–Y signals   |

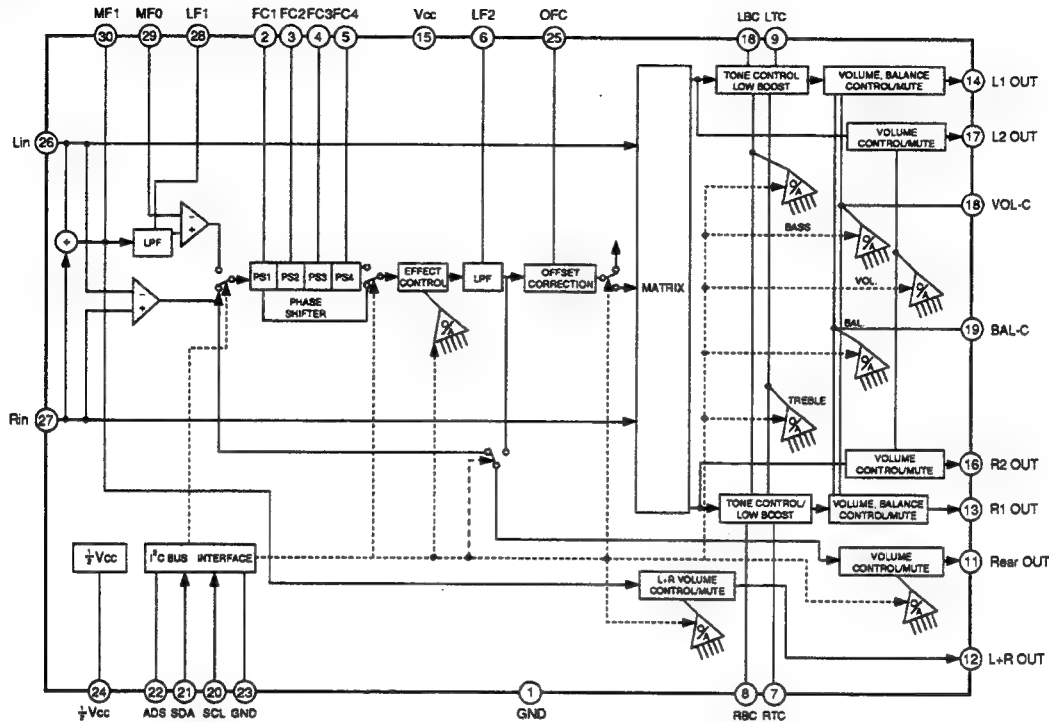
## Maximum rating (Ta = 25°C)

| Item                     | Symbol    | Rating      | Unit  |
|--------------------------|-----------|-------------|-------|
| Power supply voltage     | Vcc       | 12          | V     |
| Input pin signal voltage | ein       | 5           | V p-p |
| Dissipation power        | PD [NOTE] | 960         | mW    |
| Operating temperature    | Topr      | – 20 to 70  | °C    |
| Storage temperature      | Tstg      | – 55 to 150 | °C    |

[NOTE] : Reduce 7.6 mW each time temperature increases by 1°C when this IC is used at more than 25°C.

■  $\mu$ PC1853CT-01 (IC1402)  
SOUND PROCESSOR

● Block Diagram

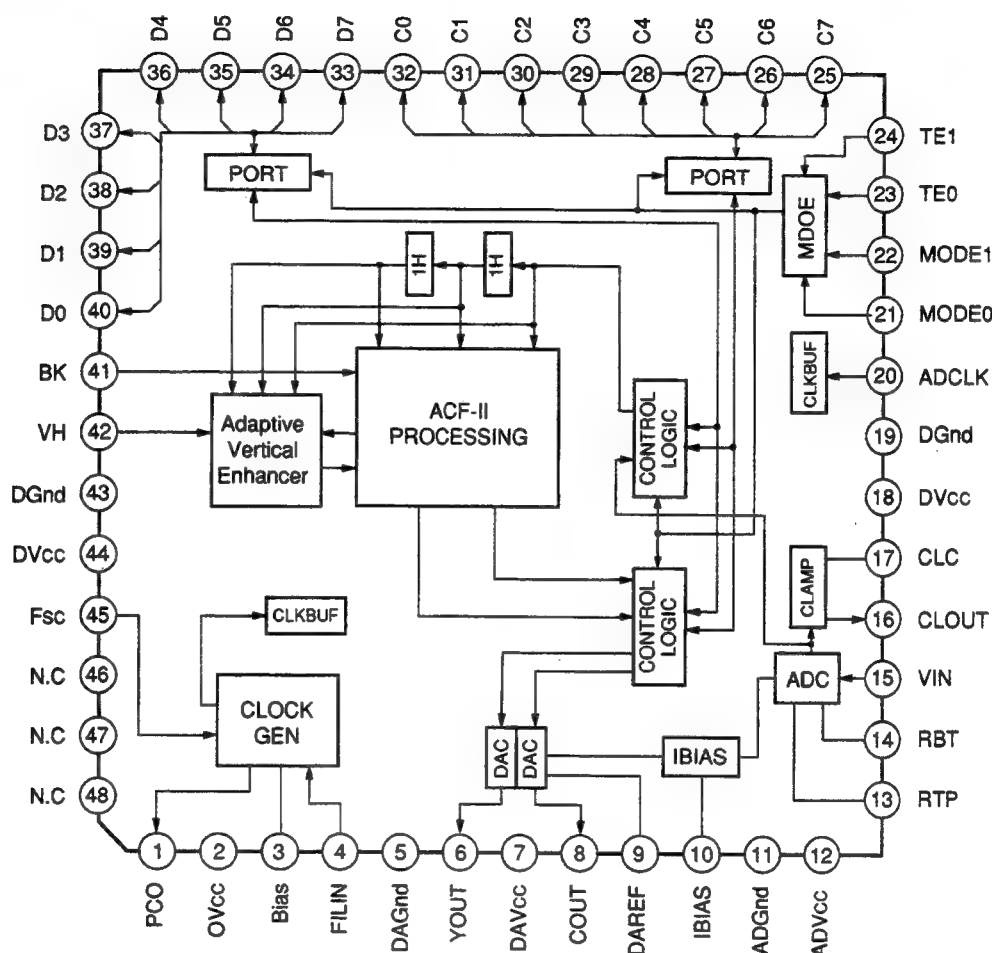


● Pin Fuction

| No. | NAME     | FUNCTION   | No. | NAME    | FUNCTION   |
|-----|----------|--|-----|---------|--|
| 1   | GND      | GND for analog signal processing   | 16  | R2 OUT  | Outputs R channel signal<br>For audio output when an external audio processor, etc. is used. |
| 2   | FC1      | Connected to the capacitor determining the phase shifter time constant.                            | 17  | L2 OUT  | Outputs L channel signal<br>For audio output when an external audio processor, etc. is used. |
| 3   | FC2      |  | 18  | VOL - C | Capacitor for absorbing the shock noise of the volume control D/A converter.                 |
| 4   | FC3      |  | 19  | BAL - C | Capacitor for absorbing the shock noise of the balance control D/A converter.                |
| 5   | FC4      |  | 20  | SCL     | Serial clock line pin (I <sup>2</sup> C bus clock input)                                     |
| 6   | LF2      | Low pass filter  | 21  | SDA     | Serial data line pin (I <sup>2</sup> C bus clock input)                                      |
| 7   | RTC      | Connected to the capacitor determining the frequency characteristic of R channel treble boost/cut. | 22  | ADS     | Slave address switching pin  |
| 8   | RBC      | Connected to the capacitor determining the frequency characteristic of R channel bass boost/cut.   | 23  | DGND    | GND for I <sup>2</sup> C bus signal  |
| 9   | LTC      | Connected to the capacitor determining the frequency characteristic of L channel treble boost/cut. | 24  | 1/2 Vcc | Power supply voltage middle point filter pin   |
| 10  | LBC      | Connected to the capacitor determining the frequency characteristic of L channel bass boost/cut.   | 25  | OFC     | Pin for absorbing the offset of the phase sifter   |
| 11  | Rear OUT | Outputs L - R signal   | 26  | Lin     | Inputs L channel signal  |
| 12  | L+R OUT  | Outputs L + R signal   | 27  | Rin     | Inputs R channel signal  |
| 13  | R1 OUT   | Outputs R channel signal (main output)   | 28  | LF1     | Low pass filter  |
| 14  | L1 OUT   | Outputs L channel signal (main output)   | 29  | MF0     | Output pin of the high pass filter when surround function is in effect (simulated mode)      |
| 15  | Vcc      | +12V power supply  | 30  | MF1     | Output pin of the high pass filter when surround function is in effect (simulated mode)      |

# MC141622FU (IC3201) DIGITAL COMB FILTER

## Block Diagram



## Pin Function

| No. | NAME   | FUNCTION  | No. | NAME   | FUNCTION   |
|-----|--------|---|-----|--------|--|
| 1   | PCO    | Output pin of the phase shifter   | 11  | AD Gnd | GND for AD converter   |
| 2   | OVcc   | VCO power supply  | 12  | AD Vcc | Power supply for AD converter  |
| 3   | Bias   | VCO reference pin   | 13  | RPT    | Top reference voltage pin for AD converter : Internally supplies the top reference voltage.                      |
| 4   | FILIN  | Inputs voltage for controlling VCO  | 14  | RBT    | Bottom reference voltage pin for AD converter : Internally supplies the bottom reference voltage.                |
| 5   | DA Gnd | GND for DA converter  | 15  | VIN    | AD converter input pin   |
| 6   | COU    | Outputs luminance signals   | 16  | CLOUT  | Clamp voltage output pin : Clamps input signals by inputting video signals by AC coupling with connected to VIN. |
| 7   | DA Vcc | Power supply for DA converter   | 17  | CLC    | Determines a time constant during clamp  |
| 8   | COU    | Outputs color signal  | 18  | D Vcc  | Power supply for digital   |
| 9   | DAREF  | DA converter reference pin : Usually connected to DAGnd via a 0.1 $\mu$ F monolithic ceramic capacitor.     | 19  | D Gnd  | GND for digital  |
| 10  | IBIAS  | Bias circuit current control pin for AD/DA converter : Usually connected to DAGnd via an external resistor. |     |        |  |



| No. | NAME   | FUNCTION   | No. | NAME  | FUNCTION  |
|-----|--------|--|-----|-------|---|
| 20  | ADCLK  | AD converter clock input : Effective only in some digital input comb filter modes and test modes. Input level is CMOS level. | 34  | D6    | Digital interface 2 input/output: Usually set to the ground level.  |
| 21  | MODE 0 | Mode input : Set to ground level in the normal mode (Fsc)  | 35  | D5    | Digital interface 2 input/output: Usually set to the ground level.  |
| 22  | MODE 1 | Mode input : Set to ground level in the normal mode (Fsc)  | 36  | D4    | Digital interface 2 input/output: Usually set to the ground level.  |
| 23  | TE 0   | Test mode input : Usually set to ground level  | 37  | D3    | Digital interface 2 input/output: Usually set to the ground level.  |
| 24  | TE 1   | Test mode input : Usually set to ground level  | 38  | D2    | Digital interface 2 input/output: Usually set to the ground level.  |
| 25  | C7     | Digital interface 1 input/output : Usually set to the power supply level.  | 39  | D1    | Digital interface 2 input/output: Usually set to the ground level.  |
| 26  | C6     | Digital interface 1 input/output : Usually set to the ground level.  | 40  | D0    | Digital interface 2 input/output: Usually set to the ground level.  |
| 27  | C5     | Digital interface 1 input/output : Usually set to the ground level.  | 41  | BK    | Supports a black-and-white broadcasting: Usually set to the ground level.   |
| 28  | C4     | Digital interface 1 input/output : Usually set to the ground level.  | 42  | VH    | Vertical contouring correction switch : Usually set to the ground level.  |
| 29  | C3     | Digital interface 1 input/output : Usually set to the power supply level.  | 43  | D Gnd | GND for digital   |
| 30  | C2     | Digital interface 1 input/output : Usually set to the ground level.  | 44  | D Vcc | Power supply for digital  |
| 31  | C1     | Digital interface 1 input/output : Usually set to the ground level.  | 45  | Fsc   | Color subcarrier input : Inputs a 3.58 MHz color subcarrier frequency by AC coupling with an external capacitor (in normal (Fsc) mode). |
| 32  | C0     | Digital interface 1 input/output : Usually set to the ground level.  | 46  | N.C   | Not used. Usually set to the ground level.  |
| 33  | D7     | Digital interface 2 input/output : Usually set to the power supply level.  | 47  | N.C   | Not used. Usually set to the ground level.  |
|     |        |  | 48  | N.C   | Not used. Usually set to the ground level.  |

## ■ PD5301B (IC903)

### SYSTEM CONTROL MICROCOMPUTER

#### ● Pin Fuction

[Note] I : CMOS input N : Nch open-drain output O : CMOS output

| No. | NAME   | I/O | FUNCTION  | ACT. | No. | NAME    | I/O | FUNCTION  | ACT. |
|-----|--------|-----|---|------|-----|---------|-----|---|------|
| 1   | OSC 1  | I   | Display clock input/output.                                     | -    | 12  | INT/EXT | N   | Speaker internal/external switching. (H: Internal, L: External)   | -    |
| 2   | OSC 2  | O   |   |      | 13  | SMT ACK | I   | Smart (learning remote control function only) microcomputer busy signal input.  | H    |
| 3   | KEY    | I   | Main unit key scan signal input. Decodes PD5136 format signals. | L    | 14  | SMT RST | N   | Smart (learning remote control function only) microcomputer reset signal input.   | L    |
| 4   | N.C.   | I   | Not used.   | -    | 15  | H SYNC  | I   | Horizontal sync count input for the tuner reception. Judged that a broadcasting station is present when the number of H-SYNC during 1 mS is 12 to 18 for eight mS continuously. Judged that a broadcasting station is not present when other conditions continue for six mS continuously. | -    |
| 5   | REMOTE | I   | Remote control signal input. Decodes SR format signals.         | L    |     |         |     |   |      |
| 6   | DPO    | I   | DPO analog voltage input.                                       | -    |     |         |     |   |      |
| 7   | COLOR  | N   | Color level control PWM output.                                 | H    |     |         |     |   |      |
| 8   | TINT   | N   | Tint level control PWM output.                                  | H    | 16  | AC CLK  | I   | AC clock detection input. Used for detecting the AC power supply off. (Reset when AC is absent for 100 mS.)   | -    |
| 9   | CONTR  | N   | Contrast level control PWM output.                              | H    |     |         |     |   |      |
| 10  | BRIGHT | N   | Brightness level control PWM output.                            | H    |     |         |     |   |      |
| 11  | SHARP  | N   | Sharpness level control PWM output.                             | H    |     |         |     |   |      |

| No.  | NAME       | I/O | FUNCTION  |           | ACT. | No.       | NAME       | I/O       | FUNCTION   |   | ACT.      |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
|------|------------|-----|---|-----------|------|-----------|------------|-----------|--|---|-----------|------------|------|------|---|---|---|---|------|---|---|---|---|----|-------|---|
| 17   | SR O/X     | I   | SR pin detection input.   |           | H    | 41        | V O/X      | I         | Video signal present/absent decision input. Present: H, Absent: L.                                   |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 18   | BACK UP    | O   | Back-up to the smart (learning remote control function only) microcomputer.   |           | H    | 42        | RELAY      | O         | Power supply relay control signal output. ON: L, OFF: H  |   | L         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 19   | SMT ENB    | N   | Enables the smart (learning remote control function only) microcomputer.  |           | L    | 43        | EXP 1 ENB  | O         | Enables the port expander M66320. REC out muting, input select, ACL switching, etc.                  |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 20   | SCHK       | I   | I <sup>2</sup> C serial transfer clock input.   |           | —    | 44        | TV ENB     | O         | PLL IC (TSA5520) data enable   |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 21   | SCLK       | N   | I <sup>2</sup> C serial transfer clock.   |           | —    | 45        | CNV ENB    | O         | Converter IC (PM0002A) data enable.  |   | L         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 22   | SDATA      | I/N | I <sup>2</sup> C serial data input/output.  |           |      | 46        | DATA       | O         | Serial data output. (PLL (tuner), CCD, converter, port expander 1/2)                                 |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 23   | 1M O/X     | N   | 1M/40K (remote control input decision). L only when a 1 MHz signal is received.   |           | —    | 47        | C.C RST    | O         | CCD microcomputer hard reset output.   |   | —         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 24   | DATA IN    | I   | Serial data input.  |           | —    | 48        | C.C ENB    | O         | CCD microcomputer data enable.   |   | L         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 25   | SM CLK     | N   | Serial clock.   |           |      | 49        | V MUTE     | O         | Video mute output.   |   | —         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 26   | DATA OUT   | N   | Serial data output.   |           |      | 50        | AFT        | I         | Front end AFT signal input.  |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 27   | CNVss      |     | Connected to VSS.   |           | —    | 51        | EXP 2 ENB  | O         | Port expander 2 enable.  |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 28   | VM MUTE    | O   | Signal for muting a velocity modulation. Same timing as BLK OUT.  |           | —    | 52        | S RST      | O         | I <sup>2</sup> C serial line microcomputer block external connection switch. H: External connection. |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 29   | RESET      | I   | System reset. Reset when L is input for more than 0.95 μS (in case OSC=4.19 MHz).   |           | L    | 53        | A MUTE     | O         | Audio mute output.   |   | —         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 30   | Xin        | I   | Input/output pin of the main clock generation circuit.  |           | —    | 54        | TV_VMUTE   | O         | TV video mute output.  |   | L         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 31   | Xout       | O   | Connected to a 8.0 MHz ceramic oscillator.  |           | —    | 55        | TEST       | I         | Tuner test mode detection input.   |   | L         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 32   | Vss        |     | Applies 0V to VSS.  |           | —    | 56        | LOCK       | I         | PLL lock detection input.  |   | L         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 33   | CONV B-MUT | O   | R, G, B muting output.  |           | H    | 57        | BLK_OUT    | O         | OSD video output.  |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 34   | CONV G-MUT | O   |   |           | H    | 58        | TEST_CRS   | O         |  |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 35   | CONV R-MUT | O   |   |           | H    | 59        | OSD B      | O         |  |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 36   | TV AMUTE   | O   | Mutes the tuner sound.  |           | H    | 60        | OSD G      | O         |  |   | H         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 37   | CLK        | O   | Serial clock. (PLL (tuner), CCD, converter, port expander 1/2)  |           | —    | 61        | OSD R      | O         |  |   |           | H          |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 38   | OPT 2      | I   | Model selection (selects the microcomputer functions).  |           | —    | 62        | VSYNC      | I         | OSD sync signal input  |   | L         |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 39   | OPT 1      | I   | <table><tr><td></td><td>83 family</td><td>85 family</td><td>PRO family</td><td>(83)</td></tr><tr><td>OPT1</td><td>L</td><td>L</td><td>H</td><td>H</td></tr><tr><td>OPT2</td><td>L</td><td>H</td><td>L</td><td>H</td></tr></table> |           |      |           |            | 83 family |  |   | 85 family | PRO family | (83) | OPT1 | L | L | H | H | OPT2 | L | H | L | H | 63 | HSYNC | I |
|      |            |     |   | 83 family |      | 85 family | PRO family | (83)      |  |   |           |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| OPT1 | L          | L   | H   | H         |      |           |            |           |  |   |           |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| OPT2 | L          | H   | L   | H         |      |           |            |           |  |   |           |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
|      |            |     |   |           |      | 64        | VDD        | I         |  | — |           |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |
| 40   | CENT.O/X   | I   | Center channel pin detection input.   |           | H    |           |            |           |  |   |           |            |      |      |   |   |   |   |      |   |   |   |   |    |       |   |

■ PD5320A (IC3402)

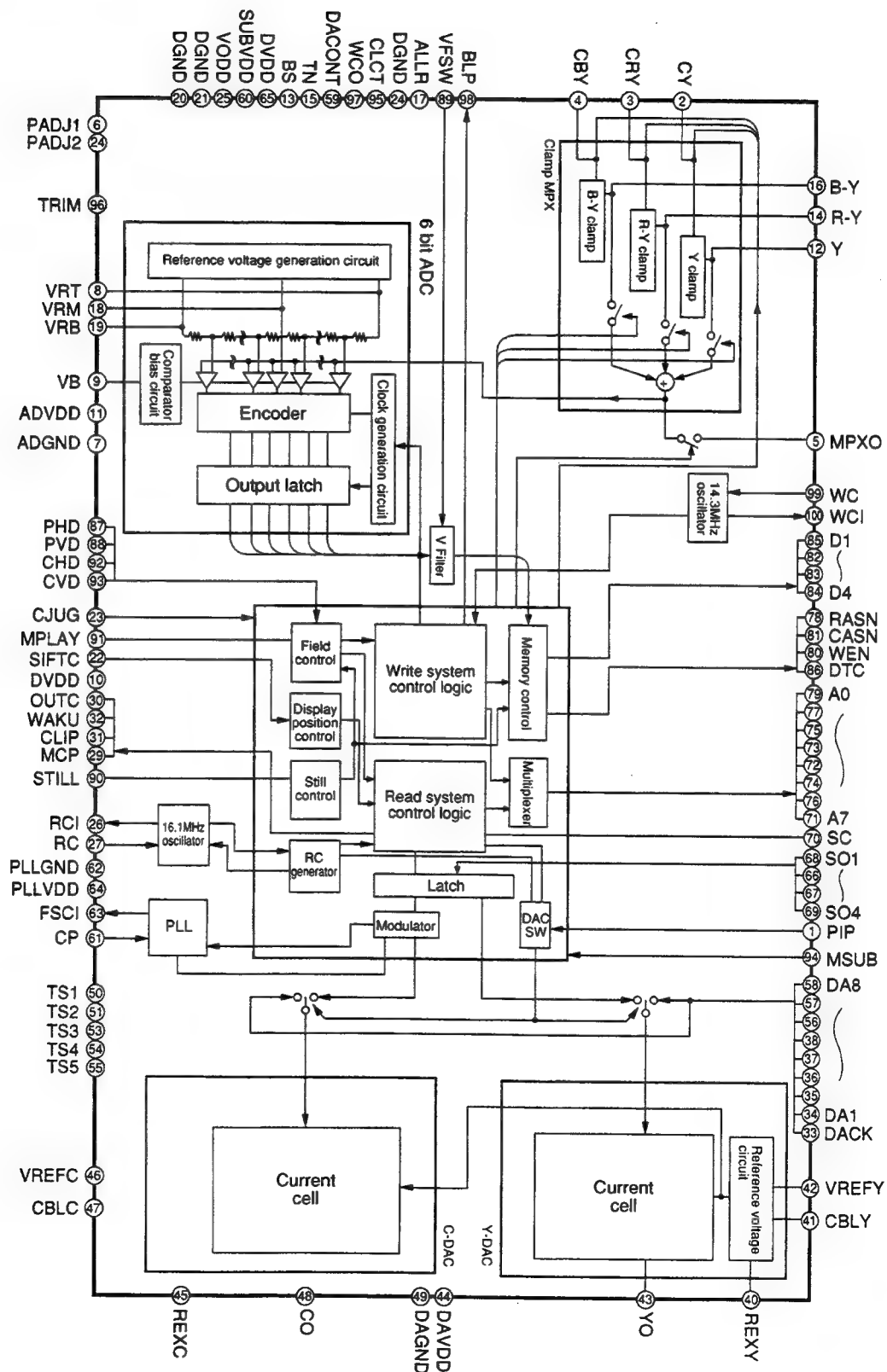
**MICROCOMPUTER FOR REMOTE CONTROL**

● Pin Fuction

| No. | NAME                   | I/O | FUNCTION   | ACT. | No. | NAME            | I/O | FUNCTION                   | ACT. |
|-----|------------------------|-----|--|------|-----|-----------------|-----|----------------------------|------|
| 1   | SROUT P62              | O   | Remote control signal output (envelope waveform)   | H    | 31  | P21/DB1         | I/O | SRAM control data 1.       | -    |
| 2   | CARY.OUT P61           | O   | Remote control signal carrier output   | -    | 32  | P20/DB0         | I/O | SRAM control data 0.       | -    |
| 3   | MUTE P61               | O   | Remote control through-line muting.<br>(Muting on when the remote control signal is output.) | -    | 33  | P17/AD15        | O   | SRAM control address 15.   | -    |
| 4   | O57                    | O   | Not used.  | -    | 34  | P16/AD14        | O   | SRAM control address 14.   | -    |
| 5   | P58                    | O   | Not used.  | -    | 35  | P15/AD13        | O   | SRAM control address 13.   | -    |
| 6   | CCRARY.IN<br>P55/CNTR1 | I   | Remote control carrier signal input.<br>(Carrier frequency decision)                         | L    | 36  | P14/AD12        | O   | SRAM control address 12.   | -    |
| 7   | P54/CHTR0              | O   | Not used.  | -    | 37  | P13/AD11        | O   | SRAM control address 11.   | -    |
| 8   | P53/INT5               | O   | Not used.  | -    | 38  | P12/AD10        | O   | SRAM control address 10.   | -    |
| 9   | P52/INT4               | O   | Not used.  | -    | 39  | P11/AD9         | O   | SRAM control address 9.    | -    |
| 10  | P51/INT3               | O   | Not used.  | -    | 40  | P10/AD8         | O   | SRAM control address 8.    | -    |
| 11  | SMART.ST<br>P50/INT2   | I/O | Communication with the main microcom-<br>puter.<br>Communication request input/ output.      | L    | 41  | P07/AD7         | O   | SRAM control address 7.    | -    |
| 12  | P47/Srdy               | O   | Not used.  | -    | 42  | P06/AD6         | O   | SRAM control address 6.    | -    |
| 13  | SMART.CK<br>P46/Sclk   | I   | Communication with the main microcom-<br>puter. Clock input.                                 | -    | 43  | P05/AD5         | O   | SRAM control address 5.    | -    |
| 14  | P45/Txd                | O   | Not used.  | -    | 44  | P04/AD4         | O   | SRAM control address 4.    | -    |
| 15  | SMART.DT<br>P44/Rxd    | I/O | Communication with the main microcom-<br>puter. Data input/output.                           | -    | 45  | P03/AD3         | O   | SRAM control address 3.    | -    |
| 16  | CARY.IN<br>P43/INT1    | I   | Remote control carrier signal input.<br>(Carrier frequency decision)                         | -    | 46  | P02/AD2         | O   | SRAM control address 2.    | -    |
| 17  | EMARGENCY<br>P42/INT0  | I   | Back-up trigger signal input.  | L    | 47  | P01/AD1         | O   | SRAM control address 1.    | -    |
| 18  | CNVss                  | I   | GND  | -    | 48  | P00/AD0         | O   | SRAM control address 0.    | -    |
| 19  | RESET                  | I   | Reset input.   | L    | 49  | RD P37/RD       | O   | SRAM control read timing.  | -    |
| 20  | P41                    | O   | Not used.  | -    | 50  | WR P36/WR       | O   | SRAM control write timing. | -    |
| 21  | P40                    | O   | Not used.  | -    | 51  | P35/SYNC        | O   | Not used.                  | -    |
| 22  | Xin                    | -   | 4 MHz oscillator   | -    | 52  | P34/ $\phi$     | O   | Not used.                  | -    |
| 23  | Xout                   | -   |  | -    | 53  | P33/RESET<br>ou | O   | Not used.                  | -    |
| 24  | Vss                    | I/O | GND  | -    | 54  | P32/ONW         | O   | Not used.                  | -    |
| 25  | P27/DB7                | I/O | SRAM control data 7.   | -    | 55  | P31             | O   | Not used.                  | -    |
| 26  | P26/DB6                | I/O | SRAM control data 6.   | -    | 56  | P30             | O   | Not used.                  | -    |
| 27  | P25/DB5                | I/O | SRAM control data 5.   | -    | 57  | Vcc             | O   | Power supply 5V.           | -    |
| 28  | P24/DB4                | I/O | SRAM control data 4.   | H    | 58  | P71             | O   | Not used.                  | -    |
| 29  | P23/DB3                | I/O | SRAM control data 3.   | -    | 59  | P70             | O   | Not used.                  | -    |
| 30  | P22/DB2                | I/O | SRAM control data 2.   | L    | 60  | P67             | O   | Not used.                  | -    |
|     |                        |     |  |      | 61  | P68             | O   | Not used.                  | -    |
|     |                        |     |  |      | 62  | P65             | O   | Not used.                  | -    |
|     |                        |     |  |      | 63  | P64             | O   | Not used.                  | -    |
|     |                        |     |  |      | 64  | P63             | O   | Not used.                  | -    |

■ HD49412 FS (IC3002)  
P IN P MEMORY CONTROLLER

● Block Diagram



●Pin Function

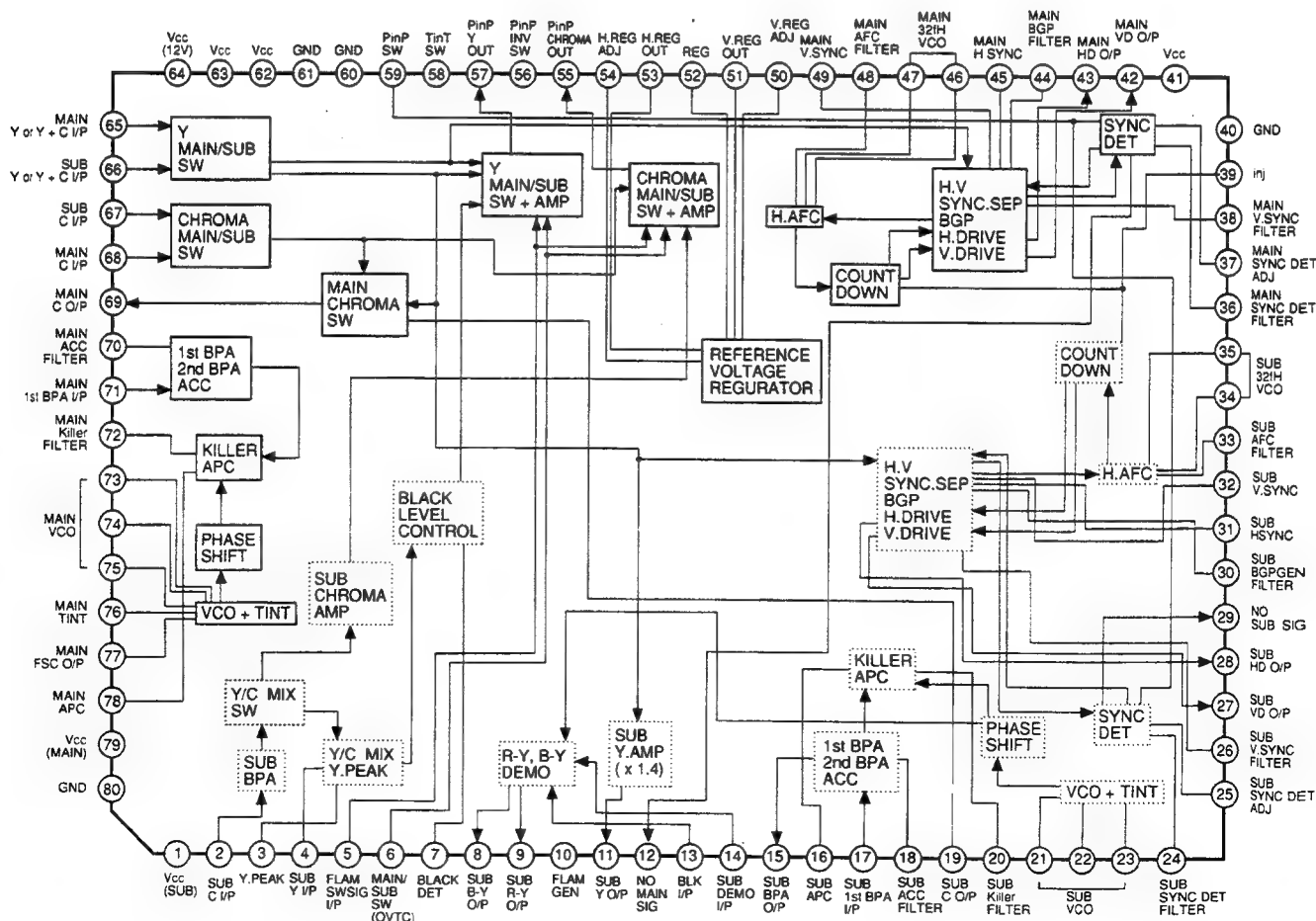
| No. | NAME  | I/O | FUNCTION                               | No. | NAME     | I/O | FUNCTION                            |
|-----|-------|-----|--|-----|----------|-----|-------------------------------------|
| 1   | PIP   | I   | P-in-P mode input                      | 39  | (NC)     | —   | No connection                       |
| 2   | CY    | —   | Y signal clamping filter               | 40  | REXY     | —   | DAC external resistor connection    |
| 3   | CRY   | —   | R-Y signal clamping filter             | 41  | CBLY     | —   | DAC bypass capacitor connection (1) |
| 4   | CBY   | —   | B-Y signal clamping filter             | 42  | VREFY    | I   | DAC reference voltage input (1)     |
| 5   | MPXO  | —   | Test-use pin                           | 43  | YO       | O   | Y signal output                     |
| 6   | PADJ1 | I   | Sub picture output timing control (1)  | 44  | DAVDD    | —   | DAC V <sub>DD</sub>                 |
| 7   | ADGND | —   | Analog system ground                   | 45  | REXC     | —   | No connection                       |
| 8   | VRT   | —   | ADC reference voltage Hi level input   | 46  | VREFC    | —   | DAC reference voltage input (2)     |
| 9   | VB    | O   | ADC comparator bias voltage            | 47  | CBLC     | —   | DAC bypass capacitor connection (2) |
| 10  | DVDD  | —   | Digital system V <sub>DD</sub>         | 48  | CO       | O   | C signal output                     |
| 11  | ADVDD | —   | Analog system V <sub>DD</sub>          | 49  | DAGND    | —   | GND                                 |
| 12  | Y     | I   | Y signal input                         | 50  | TS1      | I   | Test-use pin                        |
| 13  | BS    | I   | Test-use pin                           | 51  | TS2      | I   |                                     |
| 14  | RY    | I   | R-Y signal input                       | 52  | (NC)     | —   | No connection                       |
| 15  | TN    | I   | Test-use pin                           | 53  | TS3      | I   | Test-use pin                        |
| 16  | BY    | I   | B-Y signal input                       | 54  | TS4      | I   |                                     |
| 17  | ALLR  | I   | Test-use pin                           | 55  | TS5      | I   |                                     |
| 18  | VRM   | —   | ADC reference voltage intermediate tap | 56  | DA6      | I   | Digital signal input                |
| 19  | VRB   | —   | ADC reference voltage Lo level input   | 57  | DA7      | I   |                                     |
| 20  | DGND  | —   | Digital system ground                  | 58  | DA8      | I   |                                     |
| 21  | DGND  | —   | Digital system ground                  | 59  | DACONT   | I   | Test-use pin                        |
| 22  | SIFTC | I   | Sub picture position shift             | 60  | SUB VDD  | —   | Substrate V <sub>DD</sub>           |
| 23  | CJUG  | I   | Sub picture on/off signal input        | 61  | CP       | —   | PLL phase comparator filter         |
| 24  | DGND  | —   | Digital system ground                  | 62  | PLLGND   | —   | PLL ground                          |
| 25  | VODD  | —   | Oscillator V <sub>DD</sub>             | 63  | FSCI     | I   | Main picture burst lock fsc input   |
| 26  | RCI   | O   | Read clock feedback signal             | 64  | PLLVDD   | —   | PLL V <sub>DD</sub>                 |
| 27  | RC    | I   | Read clock signal input                | 65  | DVDD     | —   | Digital system V <sub>DD</sub>      |
| 28  | PADJ2 | I   | Sub picture output timing control (2)  | 66  | SO2      | I   | Memory read data input              |
| 29  | MCP   | O   | Pedestal clamp timing signal           | 67  | SO3      | I   |                                     |
| 30  | OUTC  | O   | Sub picture output timing signal       | 68  | SO1      | I   |                                     |
| 31  | CLIP  | O   | Sub picture noise clip timing signal   | 69  | SO4      | I   |                                     |
| 32  | WAKU  | O   | Sub picture frame output timing signal | 70  | SC       | O   | Serial read clock output            |
| 33  | DACK  | I   | DAC clock                              | 71  | A7 (MSB) | O   | Memory address data output          |
| 34  | DA1   | I   | Digital signal input                   | 72  | A4       | O   |                                     |
| 35  | DA2   | I   |  | 73  | A3       | O   |                                     |
| 36  | DA3   | I   |  | 74  | A5       | O   |                                     |
| 37  | DA4   | I   |  | 75  | A2       | O   |                                     |
| 38  | DA5   | I   |  | 76  | A6       | O   |                                     |
|     |       |     |  | 77  | A1       | O   |                                     |



| No. | NAME     | I/O | FUNCTION   | No. | NAME  | I/O | FUNCTION                                 |
|-----|----------|-----|--|-----|-------|-----|--|
| 78  | RASN     | O   | Memory row address assigned output                     | 89  | VFSW  | I   | Vertical filter on/off signal input      |
| 79  | A0 (LSB) | O   | Memory address data output                             | 90  | STILL | I   | Sub picture still mode control           |
| 80  | WEN      | O   | Sub picture data write control output                  | 91  | MPLAY | I   | Control signal for special playback      |
| 81  | CASN     | O   | Memory column address assigned output                  | 92  | CHD   | I   | Sub picture horizontal sync signal input |
| 82  | D2       | O   | Memory write data output                               | 93  | CVD   | I   | Sub picture voltage sync signal input    |
| 83  | D3       |     |  | 94  | MSUB  | I   | Multi sub picture on/off signal input    |
| 84  | D4       |     |  | 95  | CLCT  | I   | Test-use pin                             |
| 85  | D1       |     |  | 96  | TRIM  | I   | Test-use pin                             |
| 86  | DTN      | O   | Memory data transmission mode/read mode control output | 97  | WCO   | I/O | Test-use pin                             |
| 87  | PHD      | I   | Main picture horizontal sync signal input              | 98  | BLP   | O   | Blanking pulse output                    |
| 88  | PVD      | I   | Main picture vertical sync signal input                | 99  | WC    | I   | Write clock signal input                 |
|     |          |     |  | 100 | WCI   | O   | write clock feedback signal              |

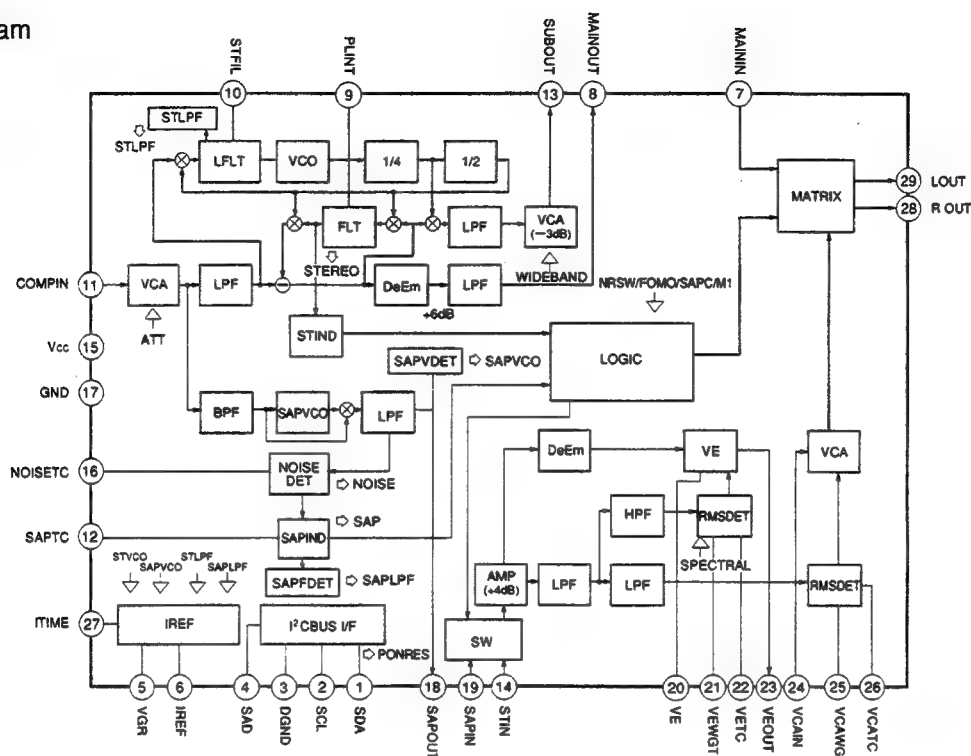
## HA11569FS (IC3001) P IN P CHROMA DECODER

### Block Diagram



■ CXA1734S (IC4901)  
US MPX DECODER

● Block Diagram



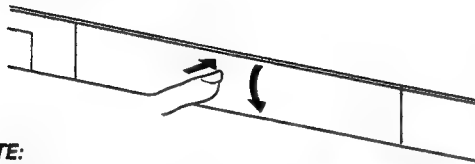
● Pin Function

| No. | NAME    | FUNCTION  | No. | NAME   | FUNCTION   |
|-----|---------|---|-----|--------|--|
| 1   | SDA     | Serial data input/output pin.   | 17  | GND    | Analog GND pin.  |
| 2   | SCL     | Serial clock input pin.   | 18  | SAPOUT | SAP FM detector output pin.  |
| 3   | DGND    | GND of digital section.   | 19  | SAPIN  | Receives the signal (SAP) from SAPOUT of Pin 18.   |
| 4   | SAD     | Slave address control switch. By changing the voltage supplied to this pin, the slave address is selected.                              | 20  | VE     | Variable de-emphasis integration pin   |
| 5   | VGR     | Band gap reference output pin.  | 21  | VEWGT  | Superimposing pin for the variable de-emphasis control effective value detection circuit.  |
| 6   | IREF    | Sets the filter and VCO reference currents. The adjustment is performed with the BUS DATA according to the current flowing to this pin. | 22  | VETC   | Determines the return time-constant for the variable de-emphasis control effective value detection circuit.  |
| 7   | MAININ  | Receives the signal (L+R) from the MAINOUT of Pin 8.  | 23  | VEOUT  | Variable de-emphasis output pin.   |
| 8   | MAINOUT | Outputs the L+R signal.   | 24  | VCAIN  | VCA input pin. Receives the variable de-emphasis output signal of Pin 23 via the coupling capacitor.   |
| 9   | PLINT   | Integration pin of the pilot cancel circuit loop filter.  | 25  | VCAWGT | Superimposing pin for the VCA control effective value detection circuit.   |
| 10  | STFIL   | Integration pin of the stereo block PLL loop filter.  | 26  | VCATC  | Determines the return time-constant for the VCA control effective value detection circuit.   |
| 11  | COMPIN  | Receives the audio multiple signal.   | 27  | ITIME  | Sets the reference current for the effective value detection timing current. The timing current determines the return time-constant and variable de-emphasis characteristics of the detection circuit. |
| 12  | SAPTC   | Sets the time-constant of the SAP carrier detection circuit.  | 28  | ROUT   | Rch output pin.  |
| 13  | SUBOUT  | Outputs the L-R signal.   | 29  | LOUT   | Lch output pin.  |
| 14  | STIN    | Receives the signal (L-R) from SUBOUT of Pin 13.  | 30  | NC     | —  |
| 15  | Vcc     | Power supply voltage pin.   |     |        |  |
| 16  | NOISETC | Sets the time-constant of the NOISE detection circuit.  |     |        |  |

## 14. FACILITIES

### ● FRONT PANEL FACILITIES

A flip-down door conceals the control panel. Push gently and release, to open the door. To close the door, lift it back up into place. Push and release to open.

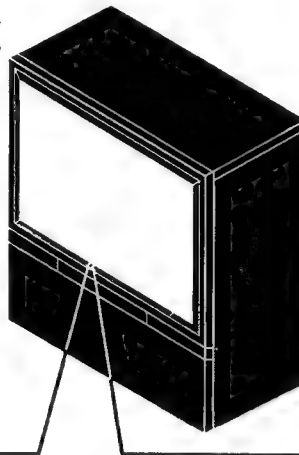


**NOTE:**

If you accidentally pull the door, it may not shut properly. Push in when shutting the door to restore it to normal operation.

**Control Panel**

Use the remote control unit to operate most functions.



#### ① MAIN POWER switch ( Except PRO-98 )

Main power switch of this unit.

When the power is turned off in the STANDBY mode (RED indicator), the unit sets into the STANDBY mode (RED indicator) when the power is turned on again the next time.

Likewise, when the power is turned off at ON (GREEN indicator), the unit sets into the ON mode (GREEN indicator) when the power is turned on again the next time.

#### ② MAIN POWER button ( PRO-98 only )

Main power switch of this unit.

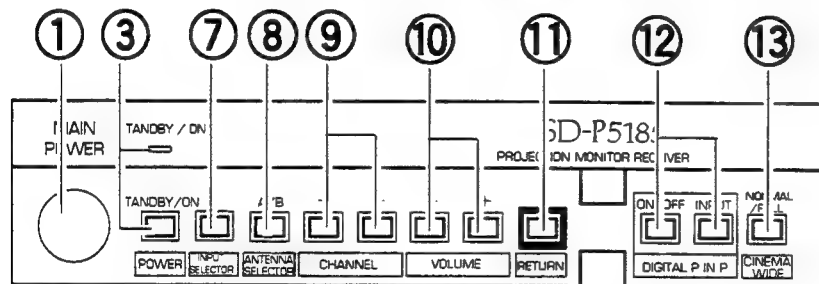
When the power is turned off in the STANDBY mode (RED indicator), the unit sets into the STANDBY mode (RED indicator) when the power is turned on again the next time.

Likewise, when the power is turned off at ON (GREEN indicator), the unit sets into the ON mode (GREEN indicator) when the power is turned on again the next time.

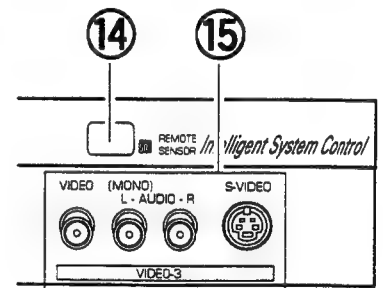
#### ③ POWER switch and indicator (STANDBY/ON) ( Except PRO-98 )

Press once to turn on the power. Press again to turn the power off. The POWER indicator lights up in green when the power is on. The indicator lights up in RED in the STANDBY mode.

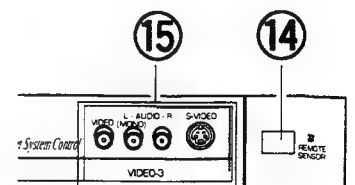
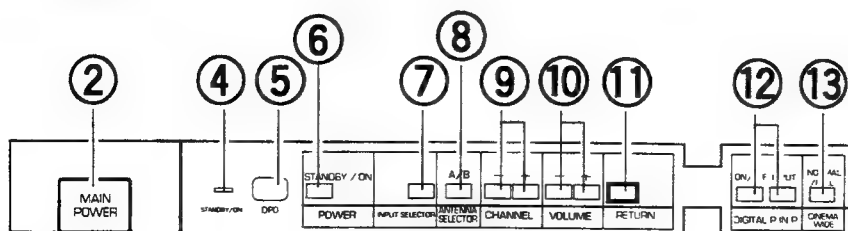
#### ●For SD-P5185, SD-P5183 and SD-P4683



•This illustration shows model SD-P5185-K.



#### ●For PRO-98



#### ATTENTION

The Projection Monitor Receiver will not function properly in the following cases.

- Lightning storms.
- High static electricity environment.
- Poor voltage regulation in the power source.

If the Projection Monitor does not operate properly, reset it as follows:

Turn off MAIN POWER switch after some time, turn it back on with the MAIN POWER switch and POWER switch.

**④ POWER STANDBY/ON indicator ( PRO-98 only )**

The POWER indicator lights up in green when the power is on. The indicator lights up in RED in the STANDBY mode.

**⑤ DPO sensor ( PRO-98 only )**

**⑥ POWER STANDBY/ON switch ( PRO-98 only )**

Press once to turn on the power. Press again to turn the power off.

**⑦ INPUT SELECTOR button**

Press to select your program source: TV, LD player, VIDEO1, VIDEO 2 or VIDEO 3. Each press of the button changes the selection to the next source.

**⑧ ANTENNA SELECTOR( A/B ) button**

Press to switch between ANTENNA-A and ANTENNA-B when you wish to watch TV.

**⑨ CHANNEL buttons**

Press plus (+) or minus (-) to tune to a higher or lower channel. Only those channels in channel preset can be tuned in by this method.

**⑩ VOLUME buttons**

Press the plus (+) or minus (-) button to raise or lower the volume.

**⑪ RETURN button**

Press to set the Projection Monitor to its initial mode instantly if either sound or picture disappear from the speaker system or the screen during adjustment.

•Adjust the Projection Monitor again after pressing the RETURN button, as all settings have been cleared.

When the RETURN button is pressed, the Projection Monitor is set as follows:

PICTURE: Parameters, set to 0.

SOUND: Parameters, set to 0.

VOLUME: Remains at the last setting.

P-IN-P/ VNR/ MUTE/SUPER BASS/

F. SURROUND/DPO: Set to OFF.

INPUT SELECTOR: Set to TV.

TV CHANNEL: Remains at the last channel set.

MTS: Remains at the last setting.

CC: CC-OFF

CINEMA WIDE: Set to the NORMAL CINEMA mode.

PICTURE EQ: Set to OFF.

•When this button is pressed during the outer point convergence, the outer point convergence contents return to the initial state.

**⑫ DIGITAL P IN P (Picture-in-Picture) buttons**

ON/OFF: Press to turn the Picture-in-Picture function on and off.

INPUT: Press to select the input source for the sub picture.

**NOTES:**

•When P IN P is set to on, the reflection signal is output to the Main screen from the S-VIDEO jacks not to the Sub picture. The composite signal passing through the RCA-type pin plug is output to both the Main screen and Sub picture.

•When the P IN P ON/OFF button is pressed and held for more than 4 seconds, the Projection Monitor will go into its demonstration mode (see front cover).

•When buttons other than P IN P ON/OFF are pressed, the demonstration mode ends.

• During still playback, special effect playback, or when searching an LD or video cassette tape visually forward or backward using the Main screen, shaking may occur in the Sub picture.

• While the P IN P function is on, the Sub picture may disappear when the Main screen signal is cut.

If the Main screen signal is supplied again, the original mode will be restored. Pictures appear on both the Main screen and the Sub picture when the Main screen signal is supplied.

**⑬ CINEMA WIDE (NORMAL/FULL) button**

Press to select whether the normal picture is to be displayed (NORMAL CINEMA mode) or the letter-box size (U. S. Standard wide) picture is to be displayed to fill the screen (FULL CINEMA).

**⑭ REMOTE SENSOR**

This sensor picks up infrared signals from the remote control unit.

**⑮ INPUT jacks (VIDEO-3)**

These front panel jacks are convenient for connecting a portable VCR, a video camera, a recorder or other temporary video source to the monitor. When the audio signal of the source to be connected is monaural, connect the L (MONO) jack.

Use the S-VIDEO jack when connecting an S-VHS or ED beta VCR, or an LD player which has a S-output jacks.

**NOTE:**

On rare occasions, an electrical discharge may occur inside the CRT. It makes a short, sharp pop and either no sound is produced or the volume level changes by itself. The Picture-in-Picture function will be cancelled automatically if an electrical discharge occurs when this function is engaged. However, VNR resumes automatically when an electrical discharge occurs. When other abnormal functionings are suspected, turn off the power of the unit at the ① MAIN POWER switch, and after some time, turn on the power with ① MAIN POWER switch and ② POWER switch. If the abnormal functionings cannot be corrected or repeat, contact an authorized PIONEER service center.

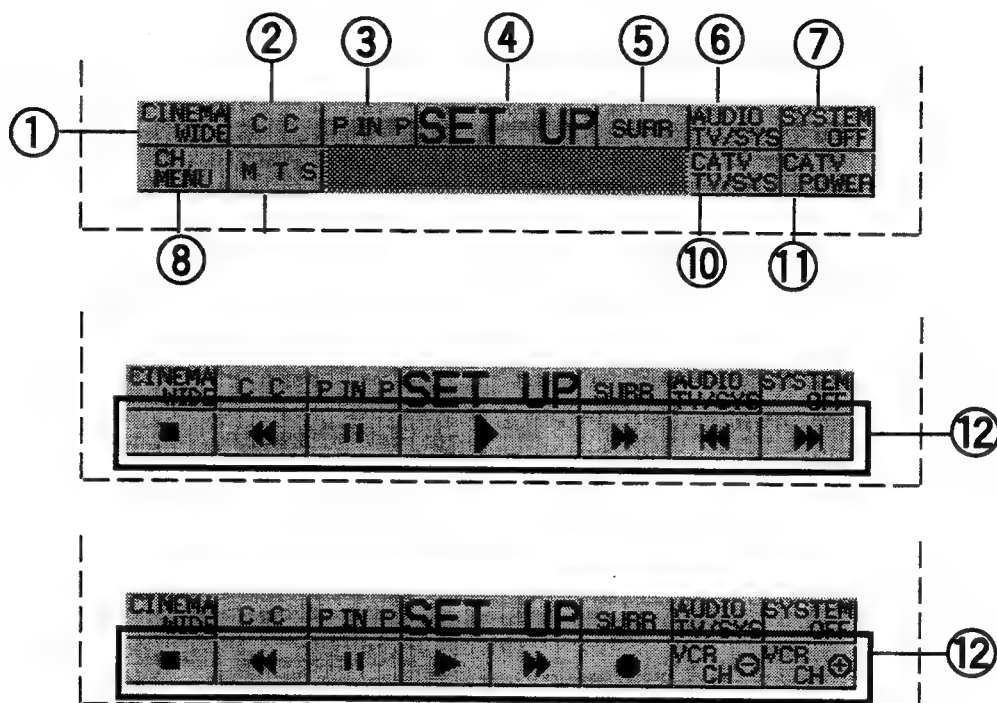
**Caution:**

Do not press any operation button on the Projection Monitor or on the remote control unit while recording is in progress. Signals from the REC jacks may be temporarily interrupted when a button is pressed.

## ● MENU FACILITIES

### •For SD-P5185 and PRO-98

•When the MENU button of the remote control unit is pressed, the following screen will be displayed.



#### ① CINEMA WIDE menu

Select to select the NORMAL CINEMA mode or FULL CINEMA mode.

#### ② CC MODE menu

Select to select the mode of displaying the character information contained in closed caption broadcasting.

Select from OFF, CC-1, CC-2, CC-3, CC-4, T-1, T-2, T-3, or T-4.

#### ③ Picture-in-Picture Control

Any program source connected to the Projection Monitor can be displayed on the screen simultaneously with any other source.

**ON / OFF:** Press to turn the Picture-in-Picture function on and off.

**INPUT:** Select to select the input source for the sub picture while in 1-sub picture mode.

**SWAP:** When only one sub picture is displayed, select to exchange the position of the main picture and sub picture.

**SHIFT:** Select to move the sub picture to a different place on the screen.

#### ④ SET UP menu

Select to perform each setting.

#### ⑤ SURR menu

In case the surround codes have been learned by REMOTE SET UP, call these codes.

#### ⑥ AUDIO TV/SYS;

Set to the SYS when outputting remote control signal to the receiver connected to the monitor.

#### ⑦ SYSTEM OFF;

Switches power to this unit, the TV and the currently selected function OFF.

#### ⑧ CH. MENU menu

Select to select the station you wish to view on the monitor.

#### ⑨ MTS (Multichannel TV Sound) menu

Select to select the reception mode for multichannel TV. Select from MAIN, SAP, MAIN/SAP, or MONO.

#### ⑩ CATV TV/SYS;

Set whether to view TV broadcasts received by the antenna or view TV broadcasts received by the cable box.

#### ⑪ CATV POWER;

Select to turn on or off the power of the CATV converter in the REMOTE SET UP condition.

#### ⑫ LD/VCR control;

See the next page.



## Connect System remote control and IR REPEATER .

LD players and VCRs that have been called up, setting up preset, and learned with referring to REMOTE SET UP can be operated.

### ⑫ LD Player Control



- ① Press the LD ONE TOUCH OPERATION button to set the input selector of the monitor to LD.
- ② Turn on the MENU with the MENU button.
- ③ Press the POWER button to turn the power on.

#### ① Stop (■) button

Press once to stop playback.

#### ② Scan (◀▶) button

Press the ▶ side of the button to search in the forward direction while playing a videodisk.  
Press the ◀ side of the button to search in the reverse direction while playing a videodisk.

#### ③ Pause/Still (||) button

Press to interrupt videodisk playback temporarily. Press the button again to resume playback.

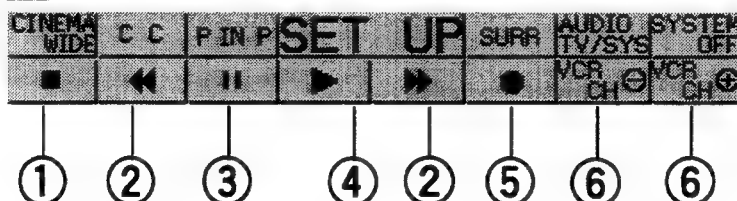
#### ④ Play (▶) button

Press to begin playback

#### ⑤ Chapter Skip (◀◀▶▶) menu (monitor screen only)

Press the ▶▶ side of the button to skip directly to the beginning of the next chapter, press the ◀◀ side to skip directly back to the beginning of the chapter currently in play. This operation can only be performed on an LD Player with a chapter skip function.

### ⑫ VCR control



- ① Press the VIDEO ONE TOUCH OPERATION button to set the input selector of the monitor to VIDEO.
- ② Turn on the MENU with the MENU button.
- ③ Press the POWER button to turn the power on.

#### ① Stop (■) button

Press to stop playback.

#### ② Rewind/Fast Forward (◀▶) button

This button allows high-speed movement through parts of the tape that you don't wish to watch. Press the left side of the button to rewind the tape, and the right side to advance the tape.

During playback, use this button to search visually forward or backward.

Keep on pressing the left or right side of the button until the section you wish to watch appears, then release it to resume normal speed playback.

#### ③ Pause (||) button

Temporarily interrupts recording or playback, producing a still picture playback.

#### ④ Play (▶) button

Press to begin playback.

#### ⑤ REC buttons

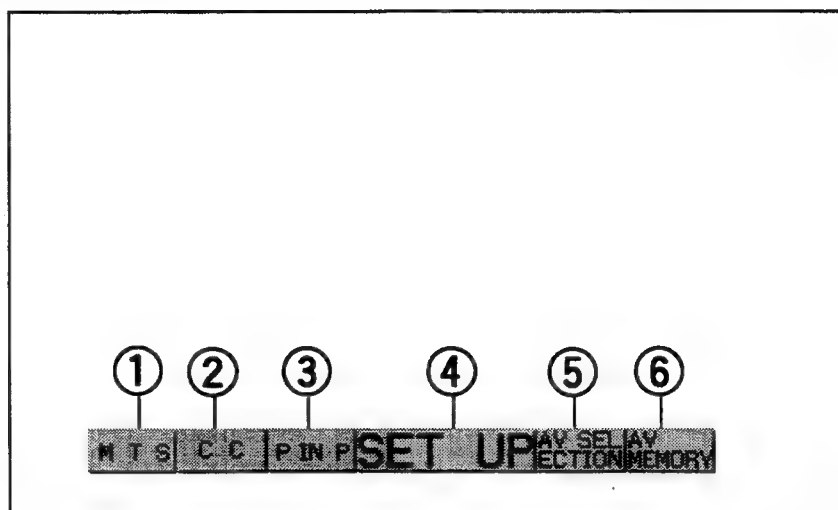
Select this menu to start recording.

#### ⑥ VCR CHANNEL +/- menu (monitor screen only)

To select the channel of the TV tuner on the VCR.

•For SD-P5183 and SD-P4683

•When the MENNU button of the remote control unit is pressed, the following screen will be displayed.



① MTS menu

Select to choose the reception mode for multichannel TV.  
This will not be displayed when LD or VIDEO is selected with the INPUT SELECTOR button.

② CC MODE menu

Select to select the mode of displaying the character information contained in closed caption broadcasting.

Select from OFF, CC-1, CC-2, CC-3, CC-4, T-1, T-2, T-3, or T-4.

③ Picture-in-Picture Control menu

Any program source connected to the Projection Monitor can be displayed on the screen simultaneously with any other source.

**ON / OFF:** Press to turn the Picture-in-Picture function on and off.

**INPUT:** Select to select the input source for the sub picture.

**SWAP:** When only one subpicture is displayed, select to exchange the position of the main picture and subpicture.

**SHIFT:** Select to move the subpicture to a different place on the screen.

④ SET UP menu



Ⓐ Select to perform each setting.

Ⓑ Adjust the picture quality parameter and sets VNR, PICTURE EQ.

Ⓒ Adjust the sound quality parameter and sets F. SURR ( front surround ) and SUPER BASS.

⑤ AV SELECTION menu

Select to call the picture and sound quality preset with the Projection Monitor.

⑥ AV MEMORY menu

Select to recall and set the AV MEMORY.

**NOTE:**

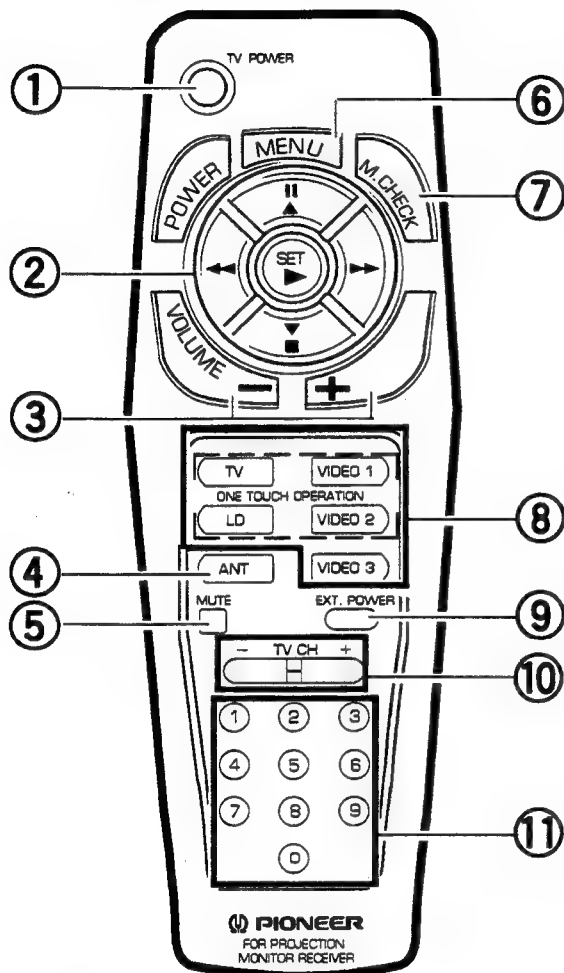
The "EXIT" item may be displayed on the screen when selecting menus.

If EXIT is selected, the screen will return to previous display.

## ● REMOTE CONTROL UNIT FACILITIES

•For SD-P5185 and PRO-98

### TV CONTROL BUTTONS



#### ① TV POWER button

Turns the power on the monitor on and off.

#### ② Select/Adjust/Set buttons (SET ▲, ▼, ◀, ▶)

▲, ▼, ◀, ▶: Press to select, adjust or set items on the menu screen.

SET: When the menu is on, press to execute an operation selected with the Select/Adjust buttons.

#### ③ VOL (Volume) +, - buttons

Press the + button to increase the - button to decrease it. Volume adjustment will appear on the screen as numbers and a bar graph. '63' indicates the maximum volume level.

The display will disappear from the screen after 2 seconds.

\*Volume display will change color automatically according to the selected input mode.

When AUDIO TV/SYS is set to AUDIO SYS, the sound volume of the connected receiver is adjusted.

#### Display colors

TV: Green

LD: Cyan (Greenish Blue)

VIDEO 1: Purple

VIDEO 2: Blue

VIDEO 3: Yellow

#### ④ ANT (antenna selector) button

Press to switch between ANTENNA-A and ANTENNA-B when you wish to watch TV.

#### ⑤ MUTE button

Press to temporarily turn off the sound. Press again to return to the previous volume level. This is useful, for example, when answering the telephone. The volume display will turn red while the mute function is engaged and will disappear from screen when the mute function is cancelled. If the mute function is left on for over approx. 8 minutes, the function will be cancelled automatically, and the volume level will be reset to 0.

When AUDIO TV/SYS is set to AUDIO SYS, the audio output of the connected receiver is muted.

#### ⑥ MENU button

Press to turn on the menu screen for use in function selection. Press again to return to normal operation.

The selected items are displayed in purple, and the items can be selected with the ▲, ▼, ◀ and ▶ buttons.

#### ⑦ M. CHECK button

Indicates whether the menu is on or off.

When it is on, ▲, ▼, ◀ and ▶ light. When it is off, a ⑧ ONE TOUCH OPERATION button lights to indicate the current function.

If you press the button again while it is lit, remote control functions change. When the menu is on, ② Select/Adjust buttons (▲, ▼, ◀ and ▶) light.

#### ⑧ ONE TOUCH OPERATION buttons

TV, LD VIDEO1, VIDEO2:

Pressing these buttons automatically calls up ONE TOUCH OPERATION setting.

Also, if power to this unit is OFF, it is switched ON, and operation automatically switches to the selected function.

VIDEO 3:

Press this button to select VIDEO 3.

ONE TOUCH OPERATION is not possible.

#### ⑨ EXT. POWER button

Press to turn on/off the power of the external component connected receiver.

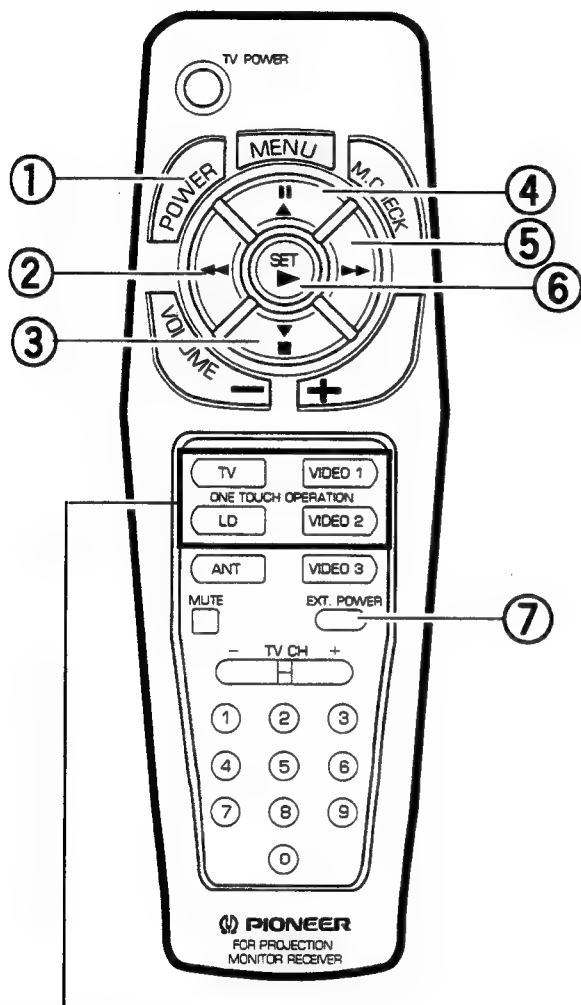
#### ⑩ TV. CH (Channel) +, - buttons

Press plus (+) or minus (-) to tune in higher or lower channel. Only those channels in channel preset can be tuned in by this method.

#### ⑪ Direct Channel Selection buttons

Press the button (or buttons) that correspond to the channel that you wish to watch, to switch directly to that channel from any other channel.

- When M. CHECK button is continuously pressed during the Main menu off, the remote control function is switched. At this time, a currently selected function lights up. Functions selected by the M. CHECK button or units selected by the ONE TOUCH OPERATION button can be controlled by the monitor power is in standby or off mode.



ONE TOUCH OPERATION buttons  
switch between each of the function.

## VCR1/VCR 2 operation

### ① POWER button

Switches the VCR power ON/OFF.

### ② ◀◀ (REW) button

Rewinds the tape and arrows picture search.

### ③ ■ (STOP) button

Stops the tape transport.

### ④ || (PAUSE/STILL) button

Sets pause and still picture.

### ⑤ ▶▶ (FF) button

Rapidly advances the tape and arrows picture search.

### ⑥ ▶ (PLAY) button

Selects playback.

## LD player operation

### ① POWER button

Switches the LD player power ON/OFF.

### ② ◀◀ (SCAN/CHAPTER SEARCH) button

Pressing quickly once takes you to the start of the chapter currently playing. Each time you press it, you move back to the start of the previous chapter. Continue pressing to rewind.

### ③ ■ (STOP) button

Playback is stopped when pressed once.

With some LD players, pressing the button twice may open the disc tray.

### ④ || (PAUSE) button

Video and audio are stopped and playback is paused.

### ⑤ ▶▶ (SCAN/CHAPTER SEARCH) button

Pressing quickly once takes you to the start of the next chapter. Each time you press it, you move ahead to the start of the next chapter. Continue pressing for fast forward.

### ⑥ ▶ (PLAY) button

Selects playback.

## Receiver operation

### ⑦ EXT. POWER button

Switches the Receiver power ON/OFF.

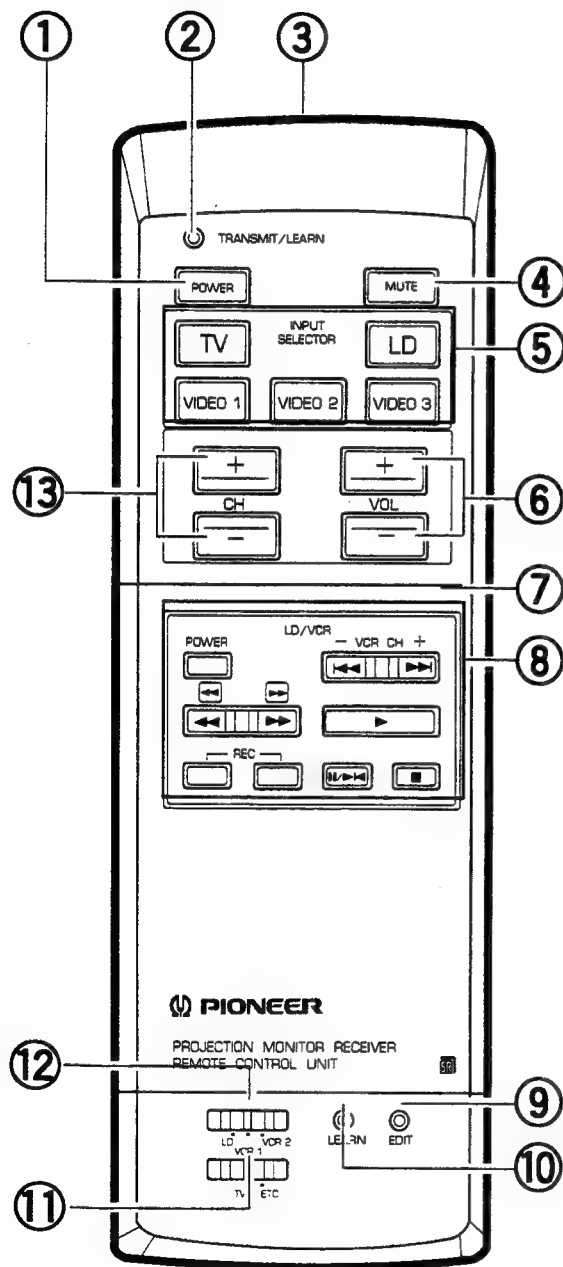
### Note for operating other components:

- REMOTE CONTROLLING OF ANY OTHER OF YOUR AUDIO-VISUAL COMPONENTS VIA THIS UNIT REQUIRES:

All components must be remote controllable (have a sensor window on the front panel) to receive a direct command from this unit, upon successful learning of those commands by this programmable unit.

- Some models cannot operate a part of functions. In such case, use a remote control attached to the components.

•For SD-P5183 and SD-P4683



① **POWER button**

Turns the power of the monitor on and off.

② **TRANSMIT/LEARN indicator**

Flashes when commands are being sent when one of the remote control buttons is pressed.

③ **Transmitting and Remote Control Code Receiver Window**

Transmits remote control signals using infrared rays. When memorizing a remote control code, the window will function as an infrared receiver.

④ **MUTE button**

Press to temporarily turn off the sound. Press again to return to the previous volume level. This is useful, for example, when answering the telephone. The volume display will turn red while the mute function is engaged and will disappear from screen when the mute function is cancelled. If the mute function is left on for over approx. 8 minutes, the function will be cancelled automatically, and the volume level will be reset to 0.

⑤ **INPUT SELECTOR buttons (TV/LD/VIDEO 1/VIDEO 2/VIDEO 3)**

Press the button to select source you wish to watch. The screen will display your selection.

⑥ **VOL (Volume) +, - buttons**

Press the + button to increase the - button to decrease it. Volume adjustment will appear on the screen as numbers and a bar graph. '63' indicates the maximum volume level. The display will disappear from the screen after 2 seconds.

\* Volume display will change color automatically according to the selected input mode.

**Display colors**


TV: Green  
LD: Cyan (Greenish Blue)  
VIDEO 1: Purple  
VIDEO 2: Blue  
VIDEO 3: Yellow

⑦ **Top panel**

Operation buttons contained inside the top panel are for more attractive feature operations.

• After all operations are completed, make sure that the top panel is securely closed.

⑧ **LD/VCR control buttons**

If your LD player or VCR (video cassette recorder) is a PIONEER model bearing the  mark, you can control the component using these buttons.

⑨ **EDIT button**

Press to set the preset code edit mode by setting Transmit Mode switch to LD, VCR 1 or VCR 2.

⑩ **LEARN button**

This setting activates the capability of the unit to "learn" and store command codes from other remote control units.



### ⑪ TV/ETC switch

Set to the position that corresponds to the component you wish to control, choose between the Projection Monitor and other LD player or video cassette recorder, using commands programmed in the remote control unit.

**TV:** To send remote control code commands to Pioneer marked models.

**ETC:** To send programmed commands.

### ⑫ Transmit Mode switch

Set to the position that corresponds to the component you wish to operate.

**LD:** To control the LD player.

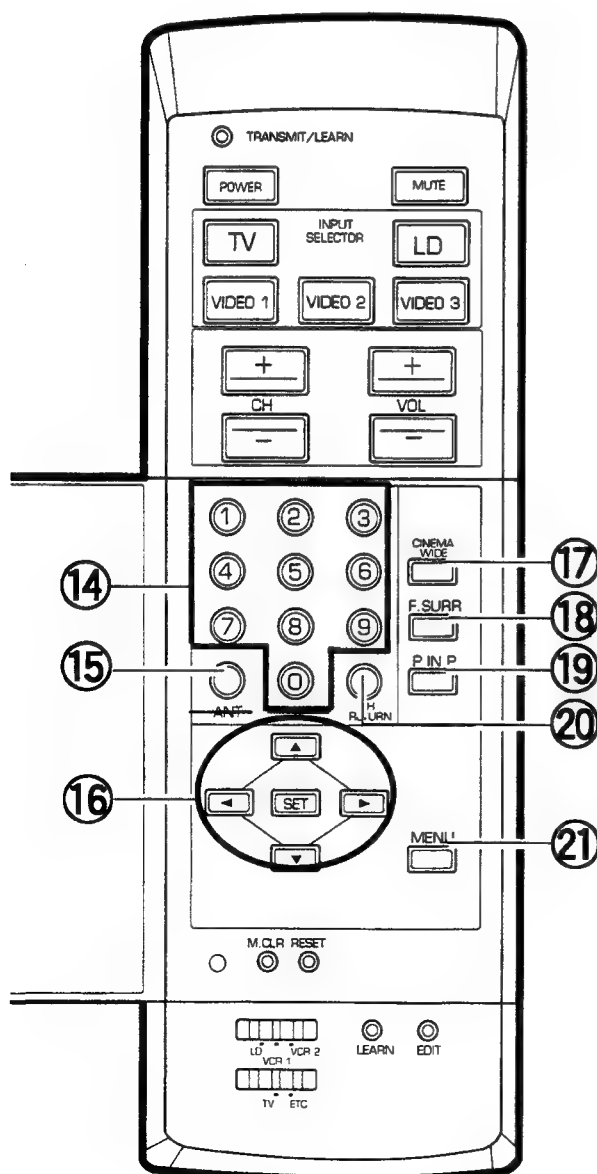
**VCR 1:** To send commands to VCR 1.

**VCR 2:** No commands are preset.

- If you wish to use LD/VCR control buttons for VCR 2 remote control, store command codes from other remote control units in the LD/VCR control buttons.

### ⑬ CH (Channel) +, - buttons

Press plus (+) or minus (-) to tune in higher or lower channel. Only those channels in channel preset can be tuned in by this method.



### Inside the top panel

### ⑭ Direct Channel Selection buttons

Press the button (or buttons) that correspond to the channel that you wish to watch, to switch directly to that channel from any other channel.

### ⑮ ANT (antenna selector) button

Press to switch between ANTENNA-A and ANTENNA-B when you wish to watch TV.

### ⑯ Select/Adjust/Set buttons (Set ▲, ▼, ◀, ▶)

▲, ▼, ◀, ▶: Press to select, adjust or set items on the menu screen.

SET: Press to activate the selected function.

### ⑰ CINEMA WIDE button

Press to select whether the normal picture is to be displayed (NORMAL CINEMA mode) or the letter - box size (U. S. Standard wide) picture is to be displayed to fill the screen (FULL CINEMA).

### ⑱ F.SURR button

Press to select front surround.

### ⑲ P IN P button

Press to turn the Picture-in-Picture function on and off.

### ⑳ CH RETURN (channel return) button

Press to switch between the current channel and the channel you were watching immediately before. This is useful, for example, if you wish to switch back and forth between two sporting events.

### ㉑ MENU button

Press to turn on the menu screen for use in function selection. Press again to return to normal operation.

The selected items are displayed in purple, and the items can be selected with the ▲, ▼, ◀ and ▶ buttons.

## 15. CHANNEL PRESET AND PASSWORD CODE

### AUTO CHANNEL PRESET

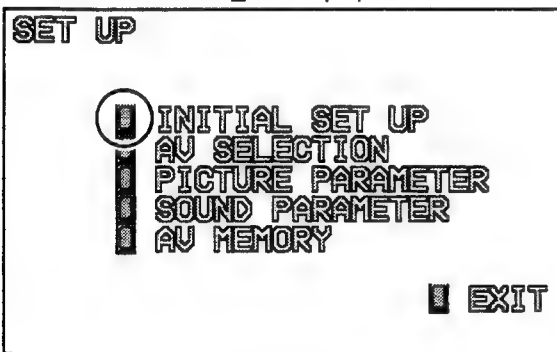
- Automatically presets channels in your area.

- 1 Set the input to TV with the ONE TOUCH OPERATION button on the remote control unit or press the INPUT SELECTOR button on the control panel so that "ANT. A CHXX" appears on the monitor screen.
- 2 Turn on the menu with the MENU button and press the ▲, ▼, ◀ or ▶ button so that the SET UP display turns purple.

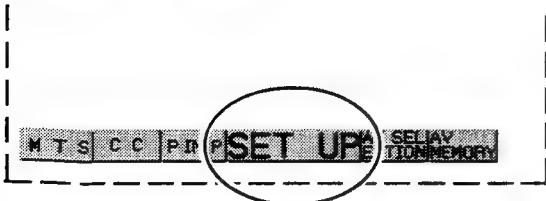


- 3 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.

- The selected item (■) turns purple.

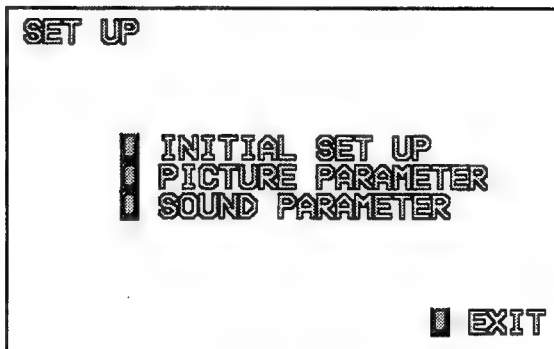


- 1 Set the input to TV with the INPUT SELECTOR button on the remote control unit or press the INPUT SELECTOR button on the control panel so that "ANT. A CHXX" appears on the monitor screen.
- 2 Turn on the menu with the MENU button and press the ◀ or ▶ button so that the SET UP display turns purple.



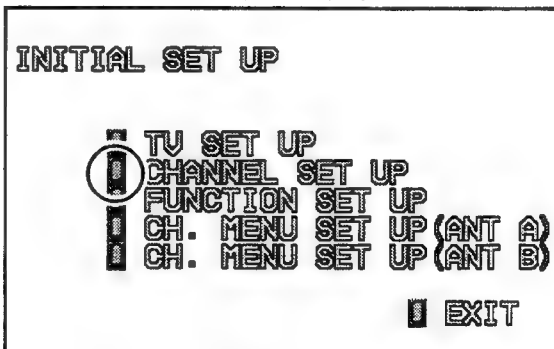
- 3 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.

- The selected item (■) turns purple.



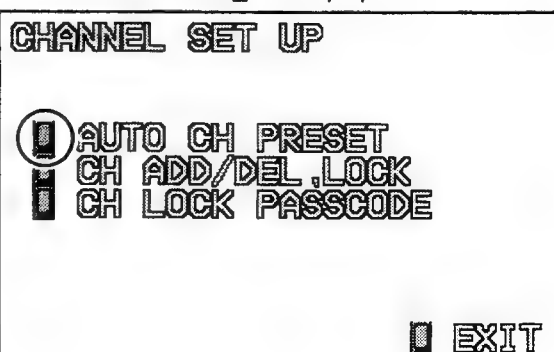
- 4 Turn on the INITIAL SET UP menu with the SET button and select the CHANNEL SET UP with the ▲ or ▼ button.

- The selected item (■) turns purple.



- 5 Turn on the CHANNEL SET UP menu with the SET button and select the AUTO CH PRESET with the ▲ or ▼ button.

- The selected item (■) turns purple.



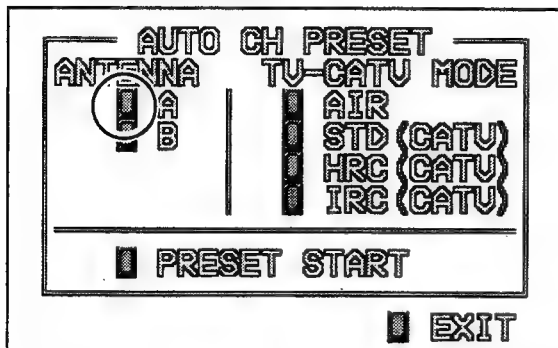
When SD-P5185 and PRO-98

When SD-P5183 and SD-P4683

When SD-P5183 and SD-P4683

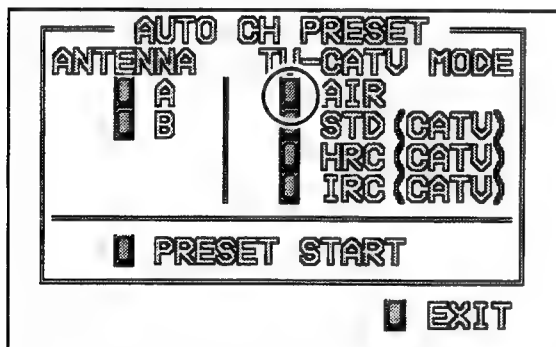
- 6 Press the SET button and select A or B from the ANTENNA item with the ▲ or ▼ button.

- The selected item ( **A** ) turns purple.
- A is selected as an example.



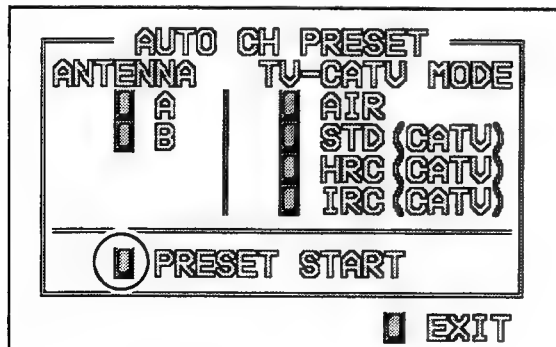
- 7 Press the SET button (A turns yellow) and select AIR, STD, HRC or IRC from the TV-CATV mode with the ▲ or ▼ button.

- The selected item ( **AIR** ) turns purple.
- AIR is selected as an example.
- Ask your dealer or cable service provider which is correct for your local CATV system.



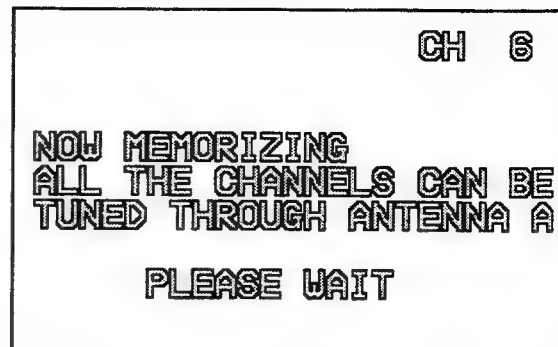
- 8 When the 6 and 7 settings are completed, Press the SET button.

- The PRESET START ( **PRESET START** ) turns purple.



- 9 Press the SET button.

- AUTO CHANNEL PRESET starts.

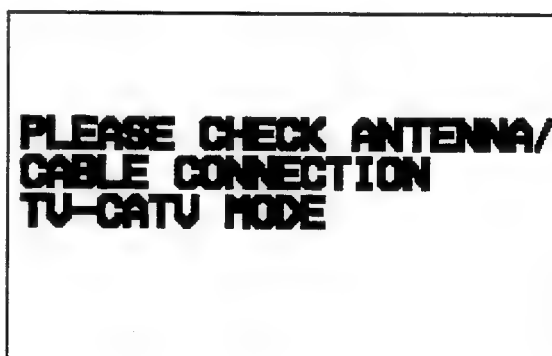


- When AUTO CHANNEL PRESET ends, step 8 is returned, and ANTENNA B is selected automatically. Perform steps 7 and 8 if ANTENNA B is being used.

- 10 Press MENU button to return to normal operation.

**NOTE:**

- If EXIT is selected, the screen will return to previous display. If AUTO CHANNEL PRESET is not performed, return to the display before by selecting EXIT after selecting TV-CATV mode, select CH. ADD/DEL, LOCK, and select the channel to be received.
- If the ANTENNA is not connected, the following will be displayed. Check if the antenna/cable is connected.



ADDING, DELETING, AND LOCKING CHANNELS

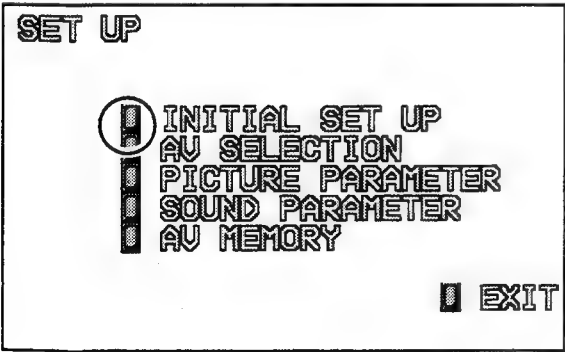
- Channels preset can be added or deleted by AUTO CHANNEL PRESET.
- ADD ..... Manually presets channels that were not preset by AUTO CHANNEL PRESET.
- DEL ..... Deletes channels that are not required for reception. When this setting is set, the channels can be skipped when receiving channels with the + and - CH (channel) buttons.
- CH LOCK ... Sets channels so that they will be concealed from users who do not input the password code. The method of setting this function is described from [8] of page 181. See pages 182 and 183 for the method of inputting the password code.
- Perform the following after completing AUTO CHANNEL PRESET.

ANTENNA - A

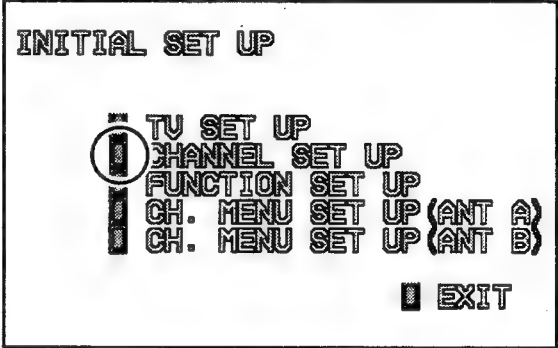
- 1 Set the input to TV with the ONE TOUCH OPERATION button on the remote control unit or press the INPUT SELECTOR button on the control panel so that "ANT. A (ANT B) CHXX" appears on the monitor screen.
- 2 Turn on the menu with the MENU button and press the ▲, ▼, ◀ or ▶ button so that the SET UP display turns purple.



- 3 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.
  - The selected item ( [ ] ) turns purple.



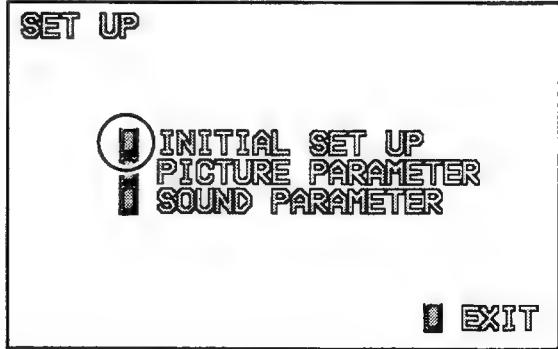
- 4 Turn on the INITIAL SET UP menu with the SET button and select the CHANNEL SET UP with the ▲ or ▼ button.
  - The selected item ( [ ] ) turns purple.



- 1 Set the input to TV with the INPUT SELECTOR button on the remote control unit or press the INPUT SELECTOR button on the control panel so that "ANT. A (ANT B) CHXX" appears on the monitor screen.
- 2 Turn on the menu with the MENU button and press the ◀ or ▶ button so that the SET UP display turns purple.



- 3 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.
  - The selected item ( [ ] ) turns purple.




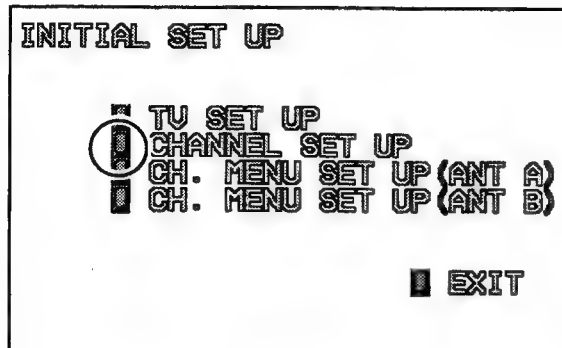
When SD-P5185 and PRO-98

When SD-P5183 and SD-P4683

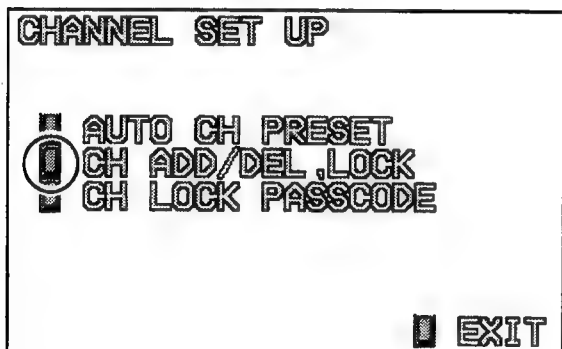
When SD-P5185 and PRO-98

When SD-P5183 and SD-P4683

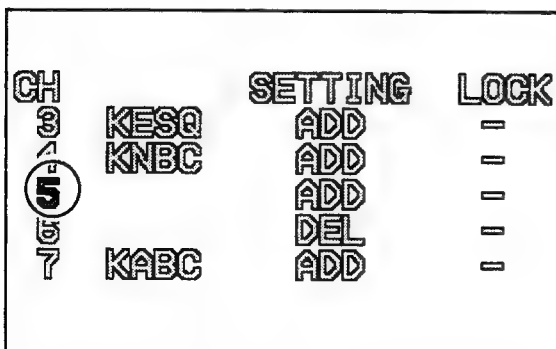
- 4 Turn on the INITIAL SET UP menu with the SET button and select the CHANNEL SET UP with the ▲ or ▼ button.
- The selected item (  ) turns purple.



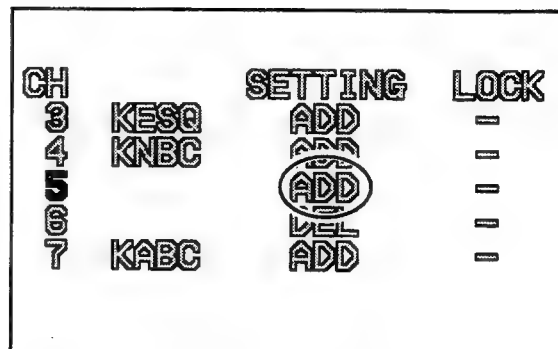
- 5 Turn on the CHANNEL SET UP menu with the SET button and select the CH ADD/DEL, LOCK with the ▲ or ▼ button.
- The selected item (  ) turns purple.



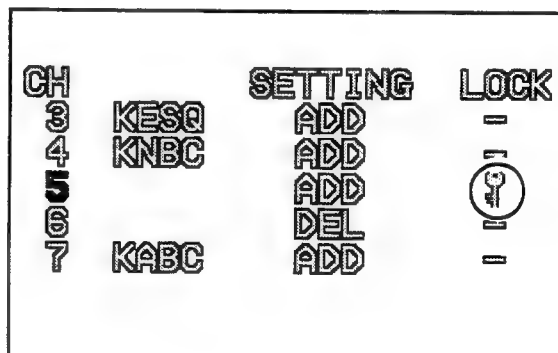
- 6 Press the SET button and select the channels to be added and deleted with the ▲ or ▼ button.
- The selected channel (Ex. 5) turns purple.



- 7 ( When SD-P5185 and PRO-98 )  
Press the SET button and select ADD (add) or DEL (delete) with the ◀ or ▶ button.
- 7 ( When SD-P5183 and SD-P4683 )  
Select ADD (add) or DEL (delete) with the ◀ or ▶ button.



- 8 Press the SET button and select channel lock (  ) with the ◀ or ▶ button to lock the channel.
- Can be set from the  to = only after the password code has been entered.



**NOTE:**

- If a channel has been locked, be sure to perform the ENTERING THE PASSWORD CODE setting.
- As CH LOCK locks the channel number, when the TV-CATV mode is changed, it has to be set again.

- 9 Press the SET button.

- 10 Repeat steps 6 to 8.

- 11 Press the MENU button to return to normal operation.



## ANTENNA - B

( SD-P5185 and PRO-98 only )

Setting performed to connect the cable box to ANTENNA-B and select channels using the Monitor's remote control.

- 1 Switch the ANTENNA-B with the ANT button.
- 2 Refer the steps 1 to 5 on pages 180 and 181.
- 3 Press SET button and select CONVERTER with the ◀ or ▶ button.
  - The selected item ( **■** ) turns purple.

| ■ ANTENNA ■ CONVERTER : 3CH |         |      |
|-----------------------------|---------|------|
| CH                          | SETTING | LOCK |
| 3                           | ADD     | -    |
| 4                           | ADD     | -    |
| <b>5</b>                    | ADD     | -    |
| 6                           | DEL     | -    |
| 7                           | ADD     | -    |

- 4 Press SET button (CONVERTER turns yellow) and select the CONVERTER's channel number with the SET button.

| ■ ANTENNA ■ CONVERTER : 3CH |         |      |
|-----------------------------|---------|------|
| CH                          | SETTING | LOCK |
| 3                           | ADD     | -    |
| 4                           | ADD     | -    |
| <b>5</b>                    | ADD     | -    |
| 6                           | DEL     | -    |
| 7                           | ADD     | -    |

- 5 Select the CH number to be added and deleted with the ▲ or ▼ button.
  - The selected channel (Ex. 5) turns purple.

| ■ ANTENNA ■ CONVERTER : 3CH |         |      |
|-----------------------------|---------|------|
| CH                          | SETTING | LOCK |
| 3                           | ADD     | -    |
| 4                           | ADD     | -    |
| <b>5</b>                    | ADD     | -    |
| 6                           | DEL     | -    |
| 7                           | ADD     | -    |

- 6 Select ADD (add) or DEL (delete) with the ◀ or ▶ button.

| ■ ANTENNA ■ CONVERTER : 3CH |            |      |
|-----------------------------|------------|------|
| CH                          | SETTING    | LOCK |
| 3                           | ADD        | -    |
| 4                           | ADD        | -    |
| <b>5</b>                    | <b>ADD</b> | -    |
| 6                           | DEL        | -    |
| 7                           | ADD        | -    |

- 7 Refer to the steps 8 to 11 on page 181.

## ENTERING THE PASSWORD CODE FOR CHANNEL LOCK

• Enter the password codes. You can view the locked channel program.

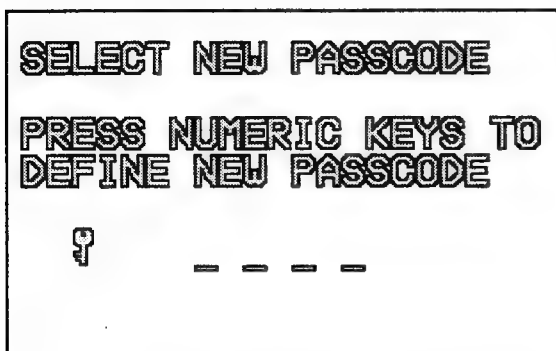
- 1 Perform steps 1 to 4 of page 180.
- 2 Turn on the CHANNEL SET UP menu with the SET button and select the CH LOCK PASSCODE with the ▲ or ▼ button.
  - The selected item ( **■** ) turns purple.

| CHANNEL SET UP |                  |
|----------------|------------------|
| ■              | AUTO CH PRESET   |
| <b>■</b>       | CH ADD/DEL LOCK  |
| ■              | CH LOCK PASSCODE |
| EXIT           |                  |

- 3 Press the SET button and input the old password code with the numerical buttons of the remote control unit.
  - This password code is set to "0000" when the monitor leaves the factory.

| CHANGE PASSCODE                          |         |
|--|---------|
| PRESS NUMERIC KEYS TO INPUT OLD PASSCODE |         |
| ■  | - - - - |

- 4 Input the new password code with the numerical buttons of the remote control unit.



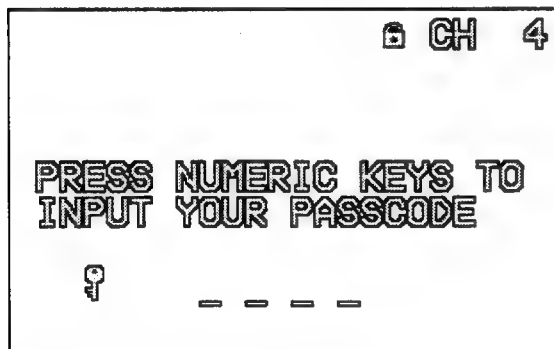
- 5 Press the MENU button to return to normal operation.

**NOTES:**

- The locked channel will not be registered unless the power is turned off once.

**To view channel locked.**

- Select the locked channel.
- The following will be displayed.



- Enter the password code.

**•If you forget the password code**

Press the RETURN button on the front panel for more than four seconds. The password code will become "0000".

Channel lock password code No.

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

**SET THE CH. MENU  
( For SD-P5185 and PRO-98 )**

You can change the channel label preset with AUTO CHANNEL PRESET and set the priority order of displaying channels on the TV screen.

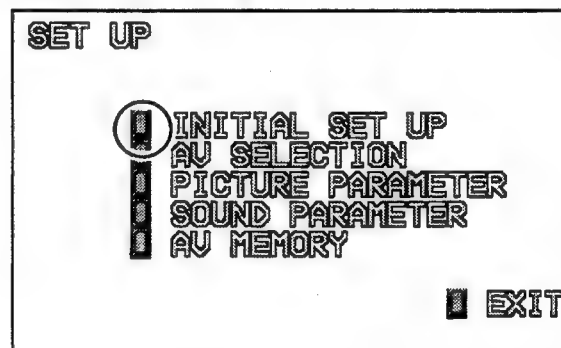
The input label can be up to 4 characters long using the 43 characters, including - (space), listed below.

- 1 Turn on the menu with the MENU button and press the ▲, ▼, ◀ or ▶ button so that the SET UP display turns purple.



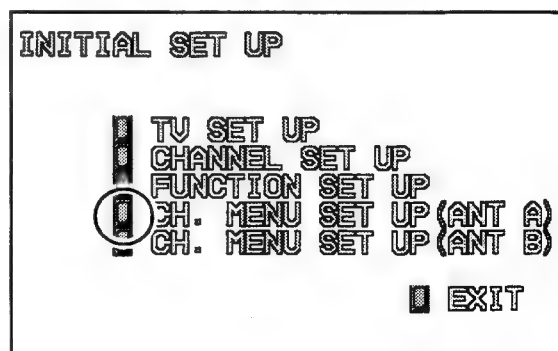
- 2 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.

- The selected item ( ■ ) turns purple.



- 3 Turn on the INITIAL SET UP menu with the SET button and select the CH. MENU SET UP (ANT A or ANT B) with the ▲ or ▼ button.

- The selected item ( ■ ) turns purple.



- 4 Press the SET button and select the number with the ▲ or ▼ button.
- In case a previously entered station label is to be modified, select the channel using the ▲ and ▼ button. (The selected channel number and the station label turn purple).

| CH.MENU SET UP (ANT.A) |    |       |      |
|------------------------|----|-------|------|
| NO.                    | CH | LABEL | MENU |
| 1                      | 2  |       | *    |
| 2                      | 3  |       | *    |
| 3                      | 4  |       | *    |
| 4                      | 5  |       | *    |
| 5                      | 6  |       | *    |

- 5 Select a number with the ◀ or ▶ button and press the SET button.

| CH.MENU SET UP (ANT.A) |    |       |      |
|------------------------|----|-------|------|
| NO                     | CH | LABEL | MENU |
| 1                      | 2  |       | *    |
| 2                      | 3  |       | *    |
| 3                      | 25 |       | *    |
| 4                      | 5  |       | *    |
| 5                      | 6  |       | *    |

- 6 Press the SET button and select a character with the ◀ or ▶ button, and press the SET button.
- By repeating steps 4 and 5, station labels of up to 20 channels can be entered.
  - To enter the input labels in No.6 to No. 20, press ▼ to make the number appear on the screen, then follow steps 4 and 5.

▶button

◀button

▶

◀

ABCDEF GHIJKLMNOPQRSTUVWXYZ0123456789:<>...↵

Space

| CH.MENU SET UP (ANT.A) |    |       |      |
|------------------------|----|-------|------|
| NO                     | CH | LABEL | MENU |
| 1                      | 2  |       | *    |
| 2                      | 3  |       | *    |
| 3                      | 25 | KT LA | *    |
| 4                      | 5  |       | *    |
| 5                      | 6  |       | *    |

• UP to 4 characters can be entered by repeating step 6 .

- 7 Press the SET button to select the setting channels displayed on the monitor screen or not with the ◀ or ▶ button.
- ⓘ ..... If ▲, ▼, ◀ or ▶ button is pressed when INPUT SELECTOR is set to TV, the channel will be displayed on the Monitor screen.

ⓘ ..... If ▲, ▼, ◀ or ▶ button is pressed when INPUT SELECTOR is set to TV, the channel will not be displayed on the Monitor screen.

| CH.MENU SET UP (ANT.A) |    |       |      |
|------------------------|----|-------|------|
| NO                     | CH | LABEL | MENU |
| 1                      | 2  |       | *    |
| 2                      | 3  |       | *    |
| 3                      | 25 | KT LA | -    |
| 4                      | 5  |       | *    |
| 5                      | 6  |       | *    |

- 8 Press the MENU button to return to normal operation.

NOTES:

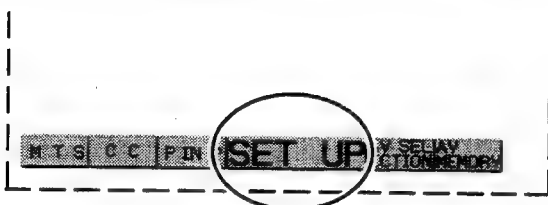
- When selecting the channel, if any character ( not number ) is input in the first digit, the setting in progress will be cancelled and the previously set channel will be displayed. To make setting for channel 1-9, channel 2 for example, first enter 0 or \_ (space) , then 2.

## SET THE CH. MENU ( For SD-P5183 and SD-P4683 )

You can change the channel label preset with AUTO CHANNEL PRESET and set the priority order of displaying channels on the TV screen.

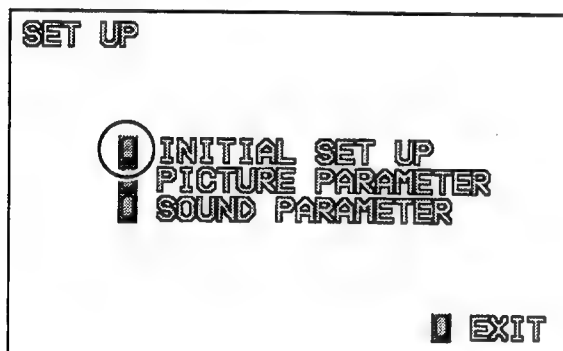
The input label can be up to 4 characters long using the 43 characters, including - (space), listed below.

- 1 Turn on the menu with the MENU button and press the ▲ or ▼ button so that the SET UP display turns purple.



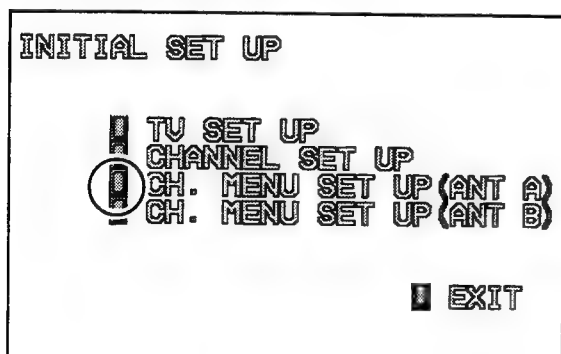
- 2 Turn on the SET UP menu with the SET button and select the INITIAL SET UP with the ▲ or ▼ button.

• The selected item ( **I** ) turns purple.



- 3 Turn on the INITIAL SET UP menu with the SET button and select the CH. MENU SET UP (ANT A or ANT B) with the ▲ or ▼ button.

• The selected item ( **I** ) turns purple.

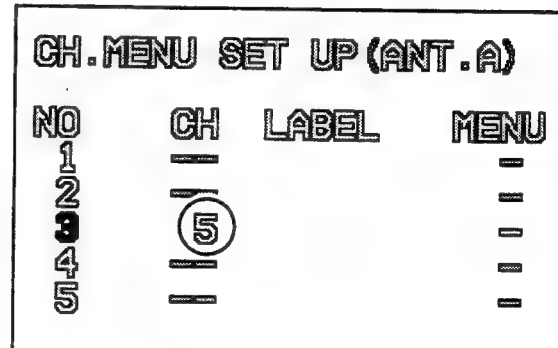


- 4 Press the SET button and select the number with the ▲ or ▼ button.

• In case a previously entered station label is to be modified, select the channel using the ▲ and ▼ button. (The selected channel number turns purple).



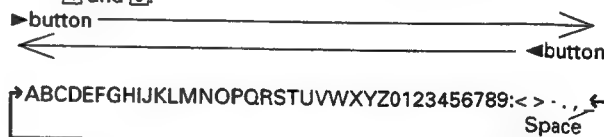
- 5 Select a number with the ◀ or ▶ button and press the SET button.



- 6 Press the SET button and select a character with the ◀ or ▶ button, and press the SET button.

• By repeating steps 4 and 5, station labels of up to 20 channels can be entered.

• To enter the input labels in No.11 to No. 20, press ▼ to make the number appear on the screen, then follow steps 4 and 5.



• UP to 4 characters can be entered by repeating step 6.

- 7 Press the SET button to select the setting channels displayed on the monitor screen or not with the ◀ or ▶ button.**

**⊗** ..... If ▲, ▼, ◀ or ▶ button is pressed when INPUT SELECTOR is set to TV, the channel will be displayed on the Monitor screen.

**=** ..... If ▲, ▼, ◀ or ▶ button is pressed when INPUT SELECTOR is set to TV, the channel will not be displayed on the Monitor screen.

| CH.MENU SET UP (ANT. A) |    |       |      |
|-------------------------|----|-------|------|
| NO                      | CH | LABEL | MENU |
| 1                       | —  |       | —    |
| 2                       | —  |       | —    |
| <b>3</b>                | 5  | KTLA  | ⊗    |
| 4                       | —  |       | —    |
| 5                       | —  |       | —    |

- 8 Press the MENU button to return to normal operation.**

**NOTES:**

- When selecting the channel, if any character ( not number ) is input in the first digit, the setting in progress will be cancelled and the previously set channel will be displayed. To make setting for channel 1-9, channel 2 for example, first enter 0 or \_ (space), then 2.







## ● For PRO-98

### DISPLAY SECTION

|                                       |   |
|---------------------------------------|---|
| Reception system .....                | American TV standard NTSC system  |
| Screen size .....                     | 60"(PRO-118)<br>51"(PRO-98)   |
| CRT .....                             | 7"High focus CRT×3  |
| Brightness (White peak) .....         | 400 Foot-Lambert (PRO-118)<br>550 Foot-Lambert (PRO-98)<br>[100% Window signal input contrast, over Max.]                                   |
| Horizontal resolution .....           | 1000 lines<br>[Input digital test pattern (900 lines resolution)]   |
| Input terminals .....                 | 4 video input systems,<br>S-VIDEO input jacks (Y/C separate INPUT) × 4<br>4 audio input systems<br>BNC input jack × 1<br>CENTER IN jack × 1 |
| Output terminals .....                | REC OUTPUT (To VIDEO-1)<br>Video output, audio output (For recording)×1<br>TV OUTPUT (Ex. to Audio/Video amplifier) ×1                      |
| System remote control terminals ..... | IN/OUT  |
| Input signal .....                    | Video signal:1.0 Vp-p ± 0.2V(75 ohms load)<br>Audio signal: 500mV rms   |
| Input impedance .....                 | Video input: 75 ohms ± 10%<br>Audio input: 22 kilo-ohms or more   |
| Input signal polarity .....           | Synchronized negative   |
| Output terminal signal ratings:       |   |
| Output terminals<br>(VIDEO-1) .....   | Video signal: 1 Vp-p(75 ohms load)<br>Audio signal: 500 mV rms(100% modulation)   |
| Output impedance .....                | Video output: 75 ohms ± 10%<br>Audio output: Less than 1 kilo-ohms  |
| Audio output terminal .....           | Audio signal: 500 mV rms<br>(100% modulation Volume MAX.)   |

### TUNER SECTION

|                          |  |
|--------------------------|--|
| Circuit type .....       | Video signal detection:<br>PLL full synchronous detection<br>PLL digital synthesizer system<br>Audio multiplex:BTSC system |
| Reception channels ..... | VHF; CH2~CH13, UHF; CH14~CH69<br>CATV(STANDARD, IRC or HRC switch able)<br>CATV 1CH ~125CH                                 |
| Antenna terminals .....  | ANTENNA terminals×2 ,75 ohms UNBAL,<br>F-type connector(VHF, UHF MIXED)  |

### AMPLIFIER SECTION

|                                  |                                   |
|----------------------------------|-----------------------------------|
| Effective output .....           | 10W×10W                           |
| Front both channels driven ..... | (THD.1% 50Hz to 15,000Hz, 8 ohms) |

#### Tone control:

|                               |   |
|-------------------------------|---|
| BASS .....                    | 8dB, 10dB(100Hz)  |
| TREBLE .....                  | 8dB, 10dB(10kHz)  |
| Built-in speaker system ..... | 16 cm (6-1/2 in) full rangex2<br>External speaker impedance 8×16 ohms |

### ELECTRICAL SECTION, MISCELLANEOUS

|                          |  |
|--------------------------|--|
| Power requirements ..... | 120 V AC, 60Hz   |
| Power consumption .....  | 300 W, 550 VA(CSA)   |
| External dimensions      |  |
| PRO-118 .....            | 1316 (W) × 675 (D) × 1429 (H) mm<br>51-3/4 (W) × 26-9/16 (D) × 56-1/4 (H) inch |
| PRO-98 .....             | 1170 (W) × 655 (D) × 1302 (H) mm<br>46-1/16 (W) × 25-3/4 (D) × 51-1/4 (H) inch |

#### Weight of main unit

|               |                       |
|---------------|-----------------------|
| PRO-118 ..... | 138 kg(304 lb 4 oz.)  |
| PRO-98 .....  | 116 kg(255 lb 12 oz.) |

### WIRELESS REMOTE CONTROL UNIT

|                        |   |
|------------------------|---|
| Operation system ..... | Programmable infrared<br>remote control system            |
| Power source .....     | DURACELL®AA* MN1500 1.5 V<br>alkaline dry cell batteries  |
| Dimensions .....       | 54(W)×42(H) ×162(D) mm<br>2-1/8(W)×1-5/8(H)×6-3/8(D) inch |
| Weight .....           | 100g(3 oz)(without batteries)                             |

### ACCESSORIES

|  |                            |
|--|----------------------------|
| Operating instructions .....                                   | 1                          |
| Warranty card .....  | 1                          |
| Remote control unit .....                                      | 1                          |
| DURACELL®AA* MN1500 1.5 V<br>alkaline dry cell batteries ..... | 2                          |
| Important Safeguards card .....                                | 1                          |
| MAIN REPEATER .....  | 1                          |
| MINI REPEATER .....  | 1                          |
| Protective screen .....  | 1                          |
| Magic tape A .....   | 2                          |
| Magic tape B .....   | 2                          |
| Upper frame .....  | 2                          |
| Lower frame .....  | 2                          |
| Side frame cover .....   | 2                          |
| Screw 14.3 MM .....  | 12 (PRO-118)<br>8 (PRO-98) |
| Screw 10 MM .....  | 12 (PRO-118)<br>8 (PRO-98) |

#### NOTE:

Specifications and design subject to possible modifications  
without notice due to improvements.